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## ACADEMIC CALENDAR

### Fairbanks Campus Academic Calendar 2018-2019

For academic calendar information for UAF’s community campuses, contact the campuses directly or visit http://uaf.edu/uaf/about/campuses/.

View the 2017-2018 academic calendar (http://catalog.uaf.edu/calendar/calendar17-18) or the 2019-2020 academic calendar (http://catalog.uaf.edu/calendar/calendar19-20).

### FALL SEMESTER 2018

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<tbody>
<tr>
<td>Fall 2018 course list available at UAOnline</td>
<td>Monday, March 19</td>
</tr>
<tr>
<td>Begin fall 2018 priority registration (UAF degree students)</td>
<td>Monday, April 2</td>
</tr>
<tr>
<td>Begin fall 2018 open registration (all UAF, UAA and UAS students, including nondegree students)</td>
<td>Monday, April 16</td>
</tr>
<tr>
<td>Deadline to apply for admission for fall semester (UA Scholars)</td>
<td>Tuesday, May 1</td>
</tr>
<tr>
<td>Deadline to apply for admission for fall semester (graduate students)</td>
<td>Friday, June 1</td>
</tr>
<tr>
<td>Deadline to apply for admission for fall semester (undergraduate students)</td>
<td>Friday, June 15</td>
</tr>
<tr>
<td>Financial aid is disbursed</td>
<td>Friday, Aug. 17</td>
</tr>
<tr>
<td>Residence halls open to first-year students only, 8 a.m.</td>
<td>Wednesday, Aug. 22</td>
</tr>
<tr>
<td>Orientation for new students</td>
<td>Wednesday-Saturday, Aug 22-25</td>
</tr>
<tr>
<td>Residence halls open to all students, 8 a.m.</td>
<td>Thursday, Aug. 23</td>
</tr>
<tr>
<td>First day of instruction; late registration begins</td>
<td>Monday, Aug. 27</td>
</tr>
<tr>
<td>Labor Day (offices closed — no classes, registration or fee payment)</td>
<td>Monday, Sept. 3</td>
</tr>
<tr>
<td>Deadline for adding classes and late registration; 5 p.m. in person, midnight at UAOnline</td>
<td>Friday, Sept. 7</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated drops with refund (course does not appear on academic record)</td>
<td>Friday, Sept. 7</td>
</tr>
<tr>
<td>Deadline for tuition and fee payment; 5 p.m. in person, midnight at UAOnline</td>
<td>Monday, Sept. 10</td>
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<tr>
<td>Early progress reports due</td>
<td>Monday, Oct. 8</td>
</tr>
<tr>
<td>Deadline to apply for fall 2018 graduation</td>
<td>Monday, Oct. 15</td>
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<tr>
<td>Spring 2019 course list available at UAOnline</td>
<td>Monday, Oct. 29</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals (W grade appears on academic transcript)</td>
<td>Friday, Nov. 2</td>
</tr>
<tr>
<td>Begin spring 2019 priority registration (UAF degree students)</td>
<td>Monday, Nov. 12</td>
</tr>
<tr>
<td>Thanksgiving break (no classes, most offices closed)</td>
<td>Wednesday-Sunday, Nov. 21-25</td>
</tr>
<tr>
<td>Begin spring 2019 open registration (all UAF, UAA and UAS students, including nondegree students)</td>
<td>Monday, Nov. 26</td>
</tr>
<tr>
<td>Last day of instruction</td>
<td>Saturday, Dec. 8</td>
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<tr>
<td>Final examinations</td>
<td>Monday-Saturday, Dec. 10-15</td>
</tr>
<tr>
<td>Residence halls close, noon</td>
<td>Sunday, Dec. 16</td>
</tr>
<tr>
<td>Deadline for faculty to post grades, noon</td>
<td>Wednesday, Dec. 19</td>
</tr>
<tr>
<td>Winter break (no classes, most offices closed; reopen Wednesday, Jan. 2, at 8 a.m.)</td>
<td>Saturday, Dec. 22-Tuesday, Jan. 1</td>
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### WINTERMESTER AND SPRING SEMESTER 2019

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<td>Deadline to apply for admission for spring semester (international students)</td>
<td>Saturday, Sept. 1</td>
</tr>
<tr>
<td>Deadline to apply for admission for spring semester (graduate students)</td>
<td>Monday, Oct. 15</td>
</tr>
<tr>
<td>Spring 2019 course list available at UAOnline</td>
<td>Monday, Oct. 29</td>
</tr>
<tr>
<td>Deadline to apply for admission for spring semester (undergraduate students)</td>
<td>Thursday, Nov. 1</td>
</tr>
<tr>
<td>Begin spring and WINTERmester 2019 priority registration (UAF degree students)</td>
<td>Monday, Nov. 12</td>
</tr>
<tr>
<td>Begin spring and WINTERmester 2019 open registration (all UAF, UAA and UAS students, including nondegree students)</td>
<td>Monday, Nov. 26</td>
</tr>
<tr>
<td>WINTERmester courses begin; attendance required</td>
<td>Wednesday, Jan. 2</td>
</tr>
<tr>
<td>Deadline for adding WINTERmester classes; 5 p.m. in person, midnight at UAOnline</td>
<td>Wednesday, Jan. 2</td>
</tr>
<tr>
<td>Deadline for WINTERmester tuition and fee payment and refunds; 5 p.m. in person, midnight at UAOnline</td>
<td>Wednesday, Jan. 2</td>
</tr>
<tr>
<td>Late payment fees begin for WINTERmester</td>
<td>Thursday, Jan. 3</td>
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<tr>
<td>Financial aid is disbursed</td>
<td>Friday, Jan. 4</td>
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<td>Deadline for WINTERmester student- and faculty-initiated withdrawals (W grade appears on academic transcript)</td>
<td>Monday, Jan. 7</td>
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<tr>
<td>Last day of WINTERmester instruction and finals</td>
<td>Friday, Jan. 11</td>
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<tr>
<td>Residence halls open, 8 a.m.</td>
<td>Friday, Jan. 11</td>
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<tr>
<td>Orientation for new students</td>
<td>Friday, Jan. 11</td>
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<tr>
<td>First day of instruction; late registration begins</td>
<td>Monday, Jan. 14</td>
</tr>
<tr>
<td>Deadline for faculty to post WINTERmester grades, noon</td>
<td>Thursday, Jan. 17</td>
</tr>
<tr>
<td>Alaska Civil Rights Day (no classes, most offices closed)</td>
<td>Monday, Jan. 21</td>
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<tr>
<td>Deadline for adding classes and late registration; 5 p.m. in person, midnight at UAOnline</td>
<td>Friday, Jan. 25</td>
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<tr>
<td>Last day for student- and faculty-initiated drops with refund (course does not appear on academic record)</td>
<td>Friday, Jan. 25</td>
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<tr>
<td>Last day for tuition and fee payment; 5 p.m. in person, midnight at UAOnline</td>
<td>Monday, Jan. 28</td>
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<tr>
<td>Deadline for UA Foundation and privately funded scholarship applications</td>
<td>Friday, Feb. 15</td>
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<tr>
<td>Deadline to apply for spring 2019 graduation</td>
<td>Friday, Feb. 15</td>
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<tr>
<td>Early progress reports due</td>
<td>Monday, Feb. 25</td>
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<tr>
<td>Spring break (no classes)</td>
<td>Monday-Friday, March 11-15</td>
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<tr>
<td>University holiday (most offices closed for spring break)</td>
<td>Friday, March 15</td>
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<tr>
<td>Fall 2019 course list available at UAOnline</td>
<td>Monday, March 25</td>
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<tr>
<td>Last day for student- and faculty-initiated withdrawals (W grade appears on academic transcript)</td>
<td>Friday, March 29</td>
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<tr>
<td>Begin fall 2019 priority registration (UAF degree students)</td>
<td>Monday, April 1</td>
</tr>
<tr>
<td>Begin fall 2019 open registration (all UAF, UAA and UAS students, including nondegree students)</td>
<td>Monday, April 15</td>
</tr>
<tr>
<td>SpringFest (classes are not canceled)</td>
<td>Friday, April 19</td>
</tr>
<tr>
<td>Last day of instruction</td>
<td>Monday, April 29</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Tuesday-Saturday, April 30-May 4</td>
</tr>
<tr>
<td>Commencement</td>
<td>Saturday, May 4</td>
</tr>
<tr>
<td>Residence halls close, noon</td>
<td>Sunday, May 5</td>
</tr>
<tr>
<td>Deadline for faculty to post grades, noon</td>
<td>Wednesday, May 8</td>
</tr>
</tbody>
</table>

### SUMMER SEMESTER 2019

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2019 course list available at UAOnline</td>
<td>Monday, Feb. 4</td>
</tr>
<tr>
<td>Begin summer 2019 priority registration (UAF degree students)</td>
<td>Monday, Feb. 11</td>
</tr>
<tr>
<td>Begin summer 2019 open registration (all UAF, UAA and UAS students, including nondegree students)</td>
<td>Monday, Feb. 25</td>
</tr>
<tr>
<td>Deadline to apply for admission for summer semester</td>
<td>Wednesday, May 1</td>
</tr>
<tr>
<td>MAYmester courses begin; attendance required</td>
<td>Monday, May 6</td>
</tr>
<tr>
<td>Deadline for adding MAYmester classes; 5 p.m. in person, midnight at UAOnline</td>
<td>Monday, May 6</td>
</tr>
<tr>
<td>Deadline for MAYmester tuition and fee payment and refunds; 5 p.m. in person, midnight at UAOnline</td>
<td>Monday, May 6</td>
</tr>
<tr>
<td>Late payment fees begin for MAYmester</td>
<td>Tuesday, May 7</td>
</tr>
<tr>
<td>Financial aid is disbursed</td>
<td>Friday, May 10</td>
</tr>
<tr>
<td>Deadline for student- and faculty-initiated withdrawals for MAYmester (W grade appears on academic transcript)</td>
<td>Monday, May 13</td>
</tr>
<tr>
<td>Last day of MAYmester instruction</td>
<td>Friday, May 17</td>
</tr>
<tr>
<td>First day of instruction for six-week session I and full session</td>
<td>Monday, May 20</td>
</tr>
<tr>
<td>Deadline to register for six-week session I; attendance required on this day</td>
<td>Wednesday, May 22</td>
</tr>
<tr>
<td>Deadline for refund of tuition and fees for six-week session I</td>
<td>Wednesday, May 22</td>
</tr>
<tr>
<td>Late payment fees begin for six-week session I</td>
<td>Thursday, May 23</td>
</tr>
<tr>
<td>Memorial Day (no classes, most offices closed)</td>
<td>Monday, May 27</td>
</tr>
<tr>
<td>Deadline to register for full session; attendance required</td>
<td>Tuesday, May 28</td>
</tr>
<tr>
<td>Deadline for refund of tuition and fees for full session</td>
<td>Tuesday, May 28</td>
</tr>
<tr>
<td>Late payment fees begin for full session</td>
<td>Wednesday, May 29</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals for six-week session I (W grade appears on academic transcript)</td>
<td>Wednesday, June 12</td>
</tr>
<tr>
<td>Last day of instruction for six-week session I</td>
<td>Friday, June 28</td>
</tr>
<tr>
<td>First day of instruction for six-week session II</td>
<td>Monday, July 1</td>
</tr>
<tr>
<td>Independence Day holiday (no classes, most offices closed)</td>
<td>Thursday-Friday, July 4-5</td>
</tr>
<tr>
<td>Deadline to register for six-week session II; attendance required on this day</td>
<td>Monday, July 8</td>
</tr>
<tr>
<td>Last day for refund of tuition and fees for six-week session II</td>
<td>Monday, July 8</td>
</tr>
<tr>
<td>Event</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Last day for registration. Deadline for thesis and research credit</td>
<td>Monday, July 8</td>
</tr>
<tr>
<td>payment (graduate students).</td>
<td></td>
</tr>
<tr>
<td>Late payment fees begin for six-week session II</td>
<td>Tuesday, July 9</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals for full</td>
<td>Tuesday, July 9</td>
</tr>
<tr>
<td>session (W grade appears on academic transcript)</td>
<td></td>
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<tr>
<td>Deadline to apply for summer 2019 graduation</td>
<td>Monday, July 15</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals for six-week</td>
<td>Wednesday, July 24</td>
</tr>
<tr>
<td>session II (W grade appears on academic transcript)</td>
<td></td>
</tr>
<tr>
<td>Last day of instruction for six-week session II and full session,</td>
<td>Friday, Aug. 9</td>
</tr>
<tr>
<td>including final exams</td>
<td></td>
</tr>
<tr>
<td>Deadline for faculty to post grades, noon</td>
<td>Wednesday, Aug. 14</td>
</tr>
</tbody>
</table>
WELCOME

This catalog is a complete guide to studying at the University of Alaska Fairbanks. The catalog includes information on admission and graduation requirements, the academic calendar, and program and course listings for certificate, associate, bachelor’s, master’s and PhD degree students.

The catalog is updated each academic year to reflect changes in academic rules and degree requirements. If you are looking for a different academic year than the one listed above, view our archived catalogs (http://www.uaf.edu/catalog/archives.html).
CONTACT US

Office of the Registrar
University of Alaska Fairbanks
1810 Salcha Street | 102 Signers’ Hall
P.O. Box 757495 | Fairbanks, AK 99775-7480
907-474-6300 | Toll free: 877-474-6046 | Fax: 907-474-1590
Email: uaf-registrar@alaska.edu
Online: http://www.uaf.edu/reg/
OVERVIEW

The catalog is a complete guide to studying at the University of Alaska Fairbanks. The catalog includes information on admission and graduation requirements, the academic calendar, and program and course listings for occupational endorsement, certificate, associate, bachelor’s, master’s and PhD degree students.

The catalog is updated each academic year to reflect changes in academic rules and degree requirements. If you are looking for a different academic year than the one listed above, view our archived catalogs (p. 681).

Programs approved after this catalog was published are available in the addendum (p. 26). Students enrolling for the first time should also refer to the registration guide at http://www.uaf.edu/register/. Search for courses available for registration at http://www.uaf.edu/coursefinder/.

For a schedule of classes at any of UAF’s community campuses, contact the campus directly. Addresses and phone numbers of campuses and UAF offices can be found at http://people.alaska.edu.

UAF Facts and Figures

Here are some quick facts and figures about UAF. See more on the UAF Facts and Figures site (http://www.uaf.edu/facts).

- Originally founded in 1917 when Alaska was still a territory, today UAF is America’s northernmost Land, Sea and Space Grant institution.
- UAF encompasses the central campus in Fairbanks; Bristol Bay Campus in Dillingham; Chukchi Campus in Kotzebue; Interior Alaska Campus, covering the Interior; Kuskokwim Campus in Bethel; Northwest Campus in Nome; and the Community and Technical College in Fairbanks.
- UAF’s geographically diverse student body represents all 50 states and 40 foreign countries.
- UAF offers 147 degrees and 32 certificates in 113 disciplines.
- As America’s Arctic university, UAF offers a number of unique programs and degrees particularly focused on the biology, climate, natural resources and peoples of northern latitudes, the circumpolar North and the Pacific Rim.
- The UAF mascot is the Nanook, a derivation of “nanuq,” the Inupiaq Eskimo word for polar bear. Up until the mid-70s, the men’s basketball team was known as the “Flying Nanooks” because of the regular, and long, airplane rides they took in order to compete with other college teams. Since 1963 all University of Alaska Fairbanks sports teams have been called Nanooks.

Degrees Conferred, Spring 2017

- 159 licensures and occupational endorsements
- 1,107 certificates and associate or baccalaureate degrees
- 277 master’s and doctoral degrees

Student Profile, Fall 2017

ENROLLMENT

<table>
<thead>
<tr>
<th>Campus</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairbanks Campus</td>
<td>5,667</td>
</tr>
<tr>
<td>Community and Technical College</td>
<td>2,423</td>
</tr>
<tr>
<td>Bristol Bay Campus</td>
<td>535</td>
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Estimated 2018-2019 UAF Annual Costs

FRESHMAN AND SOPHOMORES

<table>
<thead>
<tr>
<th></th>
<th>Alaska Resident</th>
<th>Non-Resident</th>
<th>WUE2</th>
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<tbody>
<tr>
<td>Tuition and fees</td>
<td>$7,978</td>
<td>$24,808</td>
<td>$11,308</td>
</tr>
<tr>
<td>(30 credits, 100-200-level classes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room and board</td>
<td>$8,974</td>
<td>$8,974</td>
<td>$8,974</td>
</tr>
<tr>
<td>(double room and meal plan)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ANNUAL TOTAL</td>
<td>$16,952</td>
<td>$33,782</td>
<td>$20,282</td>
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JUNIORS AND SENIORS

<table>
<thead>
<tr>
<th></th>
<th>Alaska Resident</th>
<th>Non-Resident</th>
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<tbody>
<tr>
<td>Tuition and fees</td>
<td>$9,358</td>
<td>$26,188</td>
<td>$13,348</td>
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<tr>
<td>(30 credits, 300-400-level classes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room and board</td>
<td>$8,974</td>
<td>$8,974</td>
<td>$8,974</td>
</tr>
<tr>
<td>(double room and meal plan)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNUAL TOTAL</td>
<td>$18,332</td>
<td>$35,162</td>
<td>$22,322</td>
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</table>

GRADUATE STUDENTS

<table>
<thead>
<tr>
<th></th>
<th>Alaska Resident</th>
<th>Non-Resident</th>
<th>WUE2</th>
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</thead>
<tbody>
<tr>
<td>Tuition and fees</td>
<td>$10,342</td>
<td>$20,440</td>
<td></td>
</tr>
<tr>
<td>(18 credits, 600-level classes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room and board</td>
<td>$8,974</td>
<td>$8,974</td>
<td>$8,974</td>
</tr>
<tr>
<td>(double room and meal plan)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNUAL TOTAL</td>
<td>$19,316</td>
<td>$29,414</td>
<td></td>
</tr>
</tbody>
</table>

1 Some students attend more than one campus and are not counted twice in the total.

Female 58%  Male 41%  Unknown 1%  Alaska Native/American Indian 21%  Undergraduate 88%  Graduate 12%  Median Age 26
UAF has some of the best facilities in the state. Performances are scheduled almost every weekend during the academic year in Davis Concert Hall or Salisbury Theatre. The Rasmuson Library, Alaska's largest library, offers extensive resource materials in print and online. An array of computer databases provides access to hundreds of academic journals, and internet connections allow students at remote rural sites to use library resources. The UA Museum of the North is not only one of the top visitor attractions in the state but also a resource for students. Its vast collections are used for demonstration and comparative studies in classrooms and labs.

The Fairbanks campus is the statewide university system's principal research center. Internationally respected institutes provide students with an opportunity to see science in action and participate in research activities.

FAIRBANKS AREA
Fairbanks, Alaska's second-largest city, sits on the banks of the Chena River in the heart of Alaska. The downtown district is easily accessible via the local bus system and a network of bike trails. The city is steeped in a history of riverboat captains and gold seekers. Its character has been shaped by a large military presence, construction of the trans-Alaska oil pipeline and the continuing oil economy, and a thriving university. It is a city where old quietly blends with new. Striking modern buildings sit side-by-side with log cabins built in the early part of the last century.

With an area population of some 99,000, Fairbanks offers the conveniences of a big city, yet millions of acres of rolling hills and spectacular Alaska panoramas are only minutes away. Whether the sport is canoeing, climbing, running, dog mushing, skiing or fishing, nowhere else compares with Alaska. Denali (Koyukon Athabascan for "The High One"), the tallest mountain in North America, is often visible from many UAF residence hall windows.

TRANSPORTATION TO FAIRBANKS
Fairbanks is easily accessible by land or air. Anchorage is 365 miles away via the Parks Highway or the Alaska Railroad, and Seattle is 2,300 miles away via the Alaska Highway. Major airlines offer several daily flights between Fairbanks and Anchorage, Seattle and many other destinations.

The Alaska Railroad provides a special one-way fare between Anchorage and Fairbanks for all full-time UAF students in summer or regular sessions. Students must ask for the special rate when making reservations and present their student ID to the ticket agent at check-in. For reservations, contact the Alaska Railroad at 907-458-6025 or 800-544-0552.

ELEARNING & DISTANCE EDUCATION
Since 1963, UAF has been a leader in offering distance courses and programs for students throughout Alaska and the world. eLearning & Distance Education offers more than 350 courses in 60 disciplines. Additionally, eLearning offers full degrees and certificates completely online. Internet-based courses let students increase their educational opportunities, further their education and earn their degree without the constraint of classroom attendance. eLearning courses are academically rigorous, meet during regular semesters and count toward degree and program requirements.

For more information contact eLearning & Distance Education in the Bunnell Building on the Fairbanks campus, by phone at 800-277-8060 or 907-455-2087, via email at uaf-elearning@alaska.edu or at http://elearning.uaf.edu.
Community Campuses

In addition to the Fairbanks campus, UAF has community and rural campuses in downtown Fairbanks, Bethel, Dillingham, Kotzebue and Nome, and maintains six community centers through its Interior Alaska Campus in Fairbanks. These branches are central to fulfilling the UAF mission of providing educational opportunities throughout the state. Credits earned at any UAF campus or center are recognized at all UAF campuses, meaning that students may change campuses and transfer all UA credits.

BRISTOL BAY CAMPUS IN DILLINGHAM

The Bristol Bay Campus serves 32 rural communities in the Bristol Bay region within a 55,000-square-mile area. The campus includes 12 coastal communities served by the Aleutian-Pribilof outreach center in Unalaska/Dutch Harbor: the Aleutian archipelago, lower Alaska Peninsula, the Shumigan Islands, and the Pribilof Islands. The campus’ administrative center is in Dillingham (about 322 air miles from Anchorage and 570 air miles from Fairbanks), with centers in King Salmon, Togiak and New Stuyahok. Enrollment at Bristol Bay Campus ranges from 500 to 800 students each semester. The campus offers an Associate of Arts degree in general studies and Associate of Applied Science degrees in allied health, applied business, applied accounting, community health, early childhood education, human services, information technology, interdisciplinary studies and renewable resources. Bachelor’s degree programs include elementary education, interdisciplinary studies, rural development and social work. Master’s degrees are offered in rural development and education. Other programs include Adult Basic Education, providing adult basic education through high school-level instruction for Bristol Bay adults, and the Marine Advisory Program.

The Bristol Bay Campus also provides educational opportunities for communities in its service area, including vocational-technical, community interest and graduate courses. Classes are offered by distance delivery (audio conference, video conference, correspondence or Internet) and by instructors using traditional methods. For more information, visit http://www.uaf.edu/bbc/.

CHUKCHI CAMPUS IN KOTZEBUE

The Chukchi Campus is located 26 miles north of the Arctic Circle on the shores of the Chukchi Sea. The campus serves Kotzebue and 10 villages in a region of more than 36,000 square miles. Chukchi offers Associate of Arts as well as Associate of Applied Science degrees, and courses leading to baccalaureate degrees in education, rural development and social work. Courses are offered by local instructors and through the College of Rural and Community Development audio-conferencing and live Internet instructional systems. For more information, visit http://www.uaf.edu/chukchi/.

COMMUNITY AND TECHNICAL COLLEGE IN FAIRBANKS

The Community and Technical College offers more than 40 certificate and degree programs such as allied health and nursing, process technology, applied business and accounting, paramedic and law enforcement academies, information technology, fire science, aviation, early childhood education and more.

Many CTC classes are held during evenings or weekends; the college also offers a growing array of courses online. CTC specializes in meeting the needs of nontraditional students who have been away from college or whose work and family obligations make full-time student status challenging, as well as traditional students entering college for the first time.

CTC operates in nine different locations throughout Fairbanks and the surrounding area.

CTC’s downtown location (604 Barnette St.) provides a one-stop-shop that enables students to take care of all of their university related needs in one convenient location. Services include academic and financial aid advising, support to register and pay for courses, placement testing and students can even obtain parking passes and their student ID. CTC’s downtown location also contains a tutoring and learning center, open computer labs, and specialized classrooms and labs to support programs such as health, computer and information technology and many more.

CTC has several other locations in the Fairbanks area with specialized facilities and equipment to support the industry experience and the hands-on education provided through programs such as aviation maintenance, automotive technology, culinary arts, diesel/heavy equipment maintenance, paramedicine and more.

• Aviation Maintenance Program Hangar: 3504 University Ave. South
• Bunnell House Early Childhood Lab School: 1793 Chatanika Dr.
• Fairbanks Pipeline Training Center: 3600 Cartwright Ct.
• Hutchison Institute of Technology: 3750 Geist Rd.
• University Park Building: 1000 University Ave.
• Offices on Fort Wainwright and Eielson Air Force Base
• Partnership office at Delta Career Advancement Center in Delta Junction

For more information contact CTC at 907-455-2800 or visit http://www.ctc.uaf.edu.

INTERIOR ALASKA CAMPUS

The Interior Alaska Campus in Fairbanks serves 49 communities and villages in the Doyon region and Interior Alaska, an area about the size of France. The Interior Alaska Campus is the most decentralized of the UAF campuses. Although the director’s office and some faculty are located in Fairbanks, there are Interior Alaska Campus staff in Anchorage, Fort Yukon, McGrath, Nenana and Tok. Courses are offered throughout six regions online and by audio conference, on site by local or visiting instructors, and via intensive sessions in Fairbanks and Anchorage. The campus offers a range of degree programs, including occupational endorsements, certificates, and Associate of Arts and Associate of Applied Science degrees. Math and English tutors are available for all students taking courses through the campus. For more information, visit http://www.uaf.edu/iac/.

KUSKOKWIM CAMPUS IN BETHEL

The Kuskokwim Campus is located in Bethel and serves approximately 25,000 people in the Yukon-Kuskokwim Delta, which includes 47 remote Alaska Native Yup’ik and Cup’ik Eskimo and Athabaskan villages with 56 tribes in a 57,000-square-mile-area the size of Illinois. Bethel is a community of about 6,000 people 80 miles inland on the Kuskokwim River. KuC also operates one remote learning center based in Hooper Bay, a Yup’ik Eskimo community of 1,000 on the Bering Sea coast. KuC offers academic, vocational and community interest courses, as well as courses leading to associate, baccalaureate and master’s degrees, including a Bachelor of Arts degree in Yup’ik language and culture, the home language of many families in the region. The Emerging Scholars Program assists all full-time freshmen in the transition to college, both academically and socially, and in the completion of certificates and
degrees. Students may attend classes on campus and through distance delivery. Housing on campus is available in Sackett Hall, which provides suites with space for four students in each. For more information, visit http://www.bethel.uaf.edu.

NORTHWEST CAMPUS IN NOME
Northwest Campus is located in Nome, a community of 3,500 that is the service hub for the 15 villages of the Bering Strait region. This 44,000-square-mile region extends from Shishmaref on the northern edge of the Seward Peninsula to Stebbins on the southern rim of Norton Sound. It includes communities on St. Lawrence and Little Diomede islands. The area contains 570 miles of coastline, which includes all of Norton Sound and portions of the Bering and Chukchi seas.

The Northwest Campus serves a total population of nearly 10,000. Certificates and associate, bachelor's and master’s degrees are offered to the region’s residents, with courses taught both traditionally and by distance delivery. The campus responds to vocational, business development, cultural preservation and academic needs of the Bering Strait region. Many courses, programs and degrees are offered in cooperation with regional health and tribal organizations, school districts and corporations. Northwest Campus offers the high latitude range management certificate program supporting reindeer herding and husbandry. For more information, visit http://www.nwc.uaf.edu or http://www.facebook.com/uaf-nwc/.

Troth Yeddha’
In February 2013 the U.S. Board on Geographic Names officially recognized Troth Yeddha’ as the name of the ridge on which the Fairbanks campus sits. In the Lower Tanana Athabaskan language, this name means “Indian potato ridge” and refers to the plant with an edible root — Hedysarum alpinum — that is a traditional food for Native people throughout Alaska.

The Athabascan, or Dene, languages have ancient ties to the Tanana Valley. Athabaskan geographic names are functional, rule-driven and shared across neighboring languages. Numerous Tanana Valley Athabaskan experts have shared the Troth Yeddha’ place name with pride.

In 1994, the late Chief Peter John of Minto said Athabaskan people long ago would gather on Troth Yeddha’ to talk and advise one another. When they learned this place would be used for a university, he said, they decided that the school would carry on a traditional use of this hill — a place for thinking and working together.

In recent years, numerous facts about the Chena Athabascans of Troth Yeddha’ have been assembled. Until the 1840s, a small village was located near a pond at the base of the ridge, where the UAF Physical Plant building is now. Athabaskan place names for the nearby lakes and streams, some of which incorporate the ridge’s name, have also been identified.

UAF celebrates and honors the historical place of Alaska’s first peoples. In 2008, the UA Board of Regents set aside seven acres next to the UA Museum of the North as Troth Yeddha’ Park. The park is a venue to recognize the rich cultures of Alaska Natives and their presence on the Fairbanks campus.

For more information visit http://www.uaf.edu/trothyeddha/.

Colleges and Schools
UAF colleges and schools offer programs leading to occupational endorsements, certificates and associate, bachelor’s and master’s degrees in the arts, sciences and professions. Doctoral programs are available in areas of particular strength, such as sciences and mathematics.

Community and Technical College
The Community and Technical College fulfills UAF’s community college mission in the greater Fairbanks area by offering high-quality certificate, degree and specialized training programs. Its core purpose is to provide community-driven education to meet needs for workforce development, academic preparation and lifelong learning. CTC helps prepare Alaskans for Alaska’s jobs.

CTC offers more than 40 certificate and degree programs such as allied health and nursing, process technology, applied business and accounting, paramedic and law enforcement academies, information technology, fire science, aviation, and early childhood education.

CTC benefits from strong partnerships with local employers in business, industry and organized labor. Many CTC faculty come from active workplace settings, ensuring that CTC students learn from people at the forefront of their professions.

Many CTC classes are held during evenings or weekends; the college also offers a growing array of courses online. CTC specializes in meeting the needs of nontraditional students who have been away from college or whose work and family obligations make full-time student status challenging, as well as traditional students entering college for the first time.

CTC operates in nine different locations in throughout the Fairbanks and surrounding area. CTC’s downtown location (604 Barnette St.) provides a one-stop-shop that enables students to take care of all of their university related needs in one convenient location. Each CTC location contains specialized facilities and equipment to support the industry experience and the hands-on education provided through programs such as aviation maintenance, automotive technology, culinary arts, diesel/heavy equipment maintenance, paramedicine and more.

For more information contact CTC at 907-455-2800 or visit http://www.ctc.uaf.edu.

Education
The School of Education prepares professional educators and counselors for Alaska’s unique geographic, cultural and linguistic conditions. Course work and fieldwork in a broad range of undergraduate and graduate programs are available to students on the Fairbanks campus and by distance delivery to rural areas. Programs offered respond to recent standards developed by the Council for the Accreditation of Educator Preparation, formerly known as the National Council of Accreditation of Teacher Education, the Alaska Teacher, Student and Cultural Standards and the Council for Accreditation of Counseling and Related Educational Programs.

Undergraduate degree programs and postbaccalaureate endorsement programs lead to state of Alaska teaching certificates in elementary and secondary education. A postbaccalaureate K-12 special education program leads to State of Alaska initial teacher certification or an additional endorsement in special education. Our school counseling
program leads to a State of Alaska Type C Special Services certificate. Our clinical mental health counseling program provides the course work required to be a licensed professional counselor in Alaska. Graduate degree programs leading to a Master of Education include school or clinical mental health counseling, elementary education, secondary education, special education, language and literacy, people, place and pedagogy, and online innovation and design.

School of Education staff and faculty work closely with colleagues at the CRCD campuses and school districts across the state to prepare well-qualified pre-service educators and to offer professional development opportunities to education and counseling practitioners. Faculty research focuses on issues related to Alaska Native people and communities, indigenous populations, cross-cultural contexts, place-based education, distance education, mental health and rural issues.

The School of Education advising office offers experienced, full-time personnel who provide advice about SOE programs on a drop-in or appointment basis and provide appropriate referrals for financial aid and other information that students and interns need. SOE rural grants, in partnership with rural school districts and UAF community campuses, provide various types of support for rural and Alaska Native students seeking to become teachers, counselors and school leaders. The School of Education is housed within the College of Natural Science and Mathematics. For more information, call 907-474-7341 or visit http://www.uaf.edu/soe/.

Engineering and Mines

The College of Engineering and Mines includes the academic departments of civil and environmental engineering, computer science, electrical and computer engineering, mechanical engineering, mining and geological engineering, and petroleum engineering, and the research enterprise of the college, the Institute of Northern Engineering. INE houses the Alaska Center for Energy and Power, the Alaska University Transportation Center, the Mineral Industry Research Laboratory, the Petroleum Development Laboratory and the Water and Environmental Research Center.

CEM offers students a challenging academic experience that will allow them to contribute, compete and succeed in today’s global economy. The college offers programs leading to undergraduate and graduate degrees in civil engineering, computer engineering, computer science, electrical engineering, geological engineering, mechanical engineering, mining engineering, petroleum engineering, and water and environmental science. In addition to these degree programs, concentrations in many areas, including Arctic engineering, are available. An engineering Ph.D. program is also offered.

The baccalaureate degree programs in computer science and civil, computer, electrical, geological, mechanical, mining and petroleum engineering are accredited by ABET.

CEM’s academic programs provide a basis for advanced study or specialized careers. CEM students benefit from small class sizes through increased interactions with faculty and other students and excellent access to instructional laboratories. The college provides opportunities for undergraduate and graduate students to participate in research. Theoretical and practical hands-on knowledge, in tandem with discipline-related research, gives CEM students the expertise and training they need for their chosen career path.

CEM departments are active in outreach activities such as Engineering Week, the Alaska Summer Research Academy, the Alaska Native Science and Engineering Program, educational workshops, the fundamentals of engineering examination review course, and a range of short courses for the professional engineering community. Visit http://cem.uaf.edu or call 907-474-7730 for more information.

Fisheries and Ocean Sciences

The College of Fisheries and Ocean Sciences is responsible for statewide academic, research and service programs relating to Alaska’s marine and freshwater environments and fisheries.

For undergraduate degrees, CFOS offers a minor and a Bachelor of Arts in fisheries, a Bachelor of Science in fisheries and ocean sciences, and a minor in marine sciences. Fieldwork opportunities are available to undergraduate students through cooperating state and federal agencies, and internships are available with nonprofit and industry fishery partners. Undergraduate fisheries majors are prepared for graduate study or to enter management, private industry or other fields.

Graduate degrees offered by CFOS include Master of Science and doctoral degrees in oceanography, marine biology and fisheries, and a Master of Marine Studies. Students can also pursue studies in seafood science through the fisheries program. Graduate students prepare for careers in university research and education, or research or management with state and federal agencies and private industry. As part of their degree programs, graduate students conduct research in collaboration with faculty, often in remote locations around Alaska and beyond.

Education, research and extension work on freshwater and marine systems are conducted by the departments that make up CFOS. The Institute of Marine Science (http://www.uaf.edu/cfos/research/institute-of-marine-sciences-en), with major laboratory facilities in Fairbanks and Seward, focuses on oceanographic and marine biological research. The Kasitsna Bay laboratory (http://www.uaf.edu/cfos/about-us/locations/kasitsna-bay), near Homer, is the site for coastal research on intertidal and subtidal communities. The Juneau Center (http://www.uaf.edu/cfos/about-us/locations/juneau) focuses on fisheries research and education. The Kodiak Seafood and Marine Science Center (http://www.uaf.edu/cfos/about-us/locations/kodiak) is focused on research and extension work on seafood science and sustainable harvest technology. The Marine Advisory Program (https://seagrant.uaf.edu/map) offers public education and outreach statewide from its offices in Anchorage and coastal communities. CFOS also operates the oceanographic vessel Sikuliaq, a global-class research vessel designed to work in the ice-laden waters of polar regions. The Sikuliaq is based in Seward.

For more information, visit http://www.uaf.edu/cfos/ or call 907-474-7210.

Graduate School

UAF offers professional licenses, graduate certificates, master’s degrees and the Doctor of Philosophy degree in a number of areas. The Graduate School also manages UAF’s unique interdisciplinary program where students can work on individualized degrees related to current issues. See the graduate degree requirements and specifics on programs offered.

The Office of the Graduate School provides information and guidance for prospective and current graduate students, including orientation, teaching assistant training and several scholarship and fellowship programs. Information can be found at http://www.uaf.edu/gradsch/ or by calling 907-474-7464.
Liberal Arts
As one of the largest colleges at Alaska’s research university, the College of Liberal Arts supports scholarship that furthers understanding of Alaska and the circumpolar region in a changing global context in addition to offering a classic liberal arts course selection. Extensive research and creative work inform our teaching to provide students with opportunities to become knowledgeable in and across the arts and humanities, Alaska Native and global languages, and social and behavioral sciences; to develop expertise in specific areas of concentration; and to participate in exciting research both as a graduate student and as an undergraduate. The college provides interdisciplinary learning opportunities beyond the classroom that foster responsibility, understanding of vital issues and commitment to place. Core curriculum courses provide breadth to the general education of all UAF undergraduates, while liberal arts undergraduate and graduate programs ground students in their disciplines. More information is available at http://www.uaf.edu/cla/ or by calling 907-474-7231.

Management
The School of Management is a global learning community where innovation in teaching, discovery and service prepares students for professional success that benefits our community, the state of Alaska and the nation. The school’s programs include undergraduate degrees in accounting, applied management, business administration, homeland security and emergency management, and sport and recreation business, as well as 11 undergraduate minors. Graduate degrees include a Master of Business Administration, a Master of Security and Disaster Management, a Master of Science in resource and applied economics, and a Ph.D. in natural resources and sustainability. The School of Management is accredited by the Association to Advance Collegiate Schools of Business International and is one of only 187 schools worldwide with an additional specialized accreditation in accounting.

Going beyond the classroom, SOM embraces experiential learning by encouraging students to be active participants in their education through involvement in student organizations, paid internships and events.

For more information visit http://www.uaf.edu/som/ or call 907-474-7461.

Natural Resources and Extension
Natural resource managers make and implement decisions to develop, maintain or protect ecosystems to meet human needs and values. This requires an interdisciplinary approach that ensures the sustainability of economic, social and ecological systems. The B.S. program in natural resources and environment integrates knowledge in natural science, policy, economics and human values to advance the sustainable management of natural resource, environmental and agricultural systems. Students learn through a variety of approaches, including classroom instruction, hands-on laboratory experiences, and opportunities for internships and independent research under the guidance of a faculty mentor. Successful graduates are qualified for employment in a broad range of private enterprise, government agencies and nonprofit organizations in the various natural resources and environmental fields, and are well-equipped for graduate studies.

Graduate students may earn one of two types of master’s degrees in natural resources and environment — one thesis-based and one project-based — or a doctorate in natural resources and sustainability. Faculty and students conduct research through the Agricultural and Forestry Experiment Station, which includes research centers and experiment farms in Fairbanks and Palmer, the Forest Soils Laboratory in Fairbanks, and field sites around the state. SNRE developed its courses and programs in close cooperation with many university units, private industry, and local, state and federal agencies. These cooperative arrangements provide students with opportunities for fieldwork and internships in the degree options listed above, as well as in outdoor recreation, water resources management, park and wilderness management, geographic information systems, and research planning and administration. For more information visit http://www.uaf.edu/snre/ or call 907-474-7188.

Natural Science and Mathematics
The College of Natural Science and Mathematics offers undergraduate and graduate degrees in the physical and life sciences, statistics and mathematics, and education. CNSM provides most UAF undergraduate courses in science and mathematics, including the baccalaureate core science curriculum and a variety of outreach programs. The college is known for its modern teaching technologies, access to professors and quality undergraduate student advising. CNSM also offers minors in each of its major disciplines.

Academic programs provide a foundation for professional careers or advanced study, and help students develop critical thinking and analytical skills. CNSM majors enjoy close working relationships with faculty and other students. The college provides opportunities for undergraduate and graduate students to work with faculty on research projects. Unique opportunities are available through UAF research centers and institutes, including the CNSM Division of Research, the Geophysical Institute, the Institute of Arctic Biology, the UA Museum of the North and the International Arctic Research Center. The fundamental knowledge gained through courses and by working on practical, discipline-related projects gives CNSM graduates the skills and experience they need to enter the job market or continue their education.

CNSM is home to the Biomedical Learning and Student Training program, Alaska Native Science and Engineering Program, and K—12 outreach programs, including the Science Potpourri, the Alaska Summer Research Academy, Inspiring Girls Expeditions and GeoFORCE. In these and other programs, high school and university students work with CNSM faculty on original research projects aimed at improving the quality of life in Alaska.

At the graduate level, CNSM offers Master of Science and doctoral degrees in the natural sciences and mathematics. These advanced programs provide students with research opportunities in laboratory and field settings throughout Alaska. CNSM’s doctoral programs provide opportunities for advanced study leading to academic and professional positions. In 2015, CNSM began a cooperative program in veterinary medicine with Colorado State University. For more information, visit http://www.uaf.edu/cnsm/ or call 907-474-7608.

Rural and Community Development
The College of Rural and Community Development focuses on the needs of nontraditional students, including students who seek skills and degrees suited to the economy and well-being of rural communities. CRCD promotes workforce preparation, economic development, lifelong learning and community development. CRCD campuses provide general and vocational-technical education at the occupational endorsement, certificate and associate degree levels, and baccalaureate degrees in rural development and child development/family studies, and a master's
in rural development. In cooperation with the College of Liberal Arts and the School of Education, CRCD offers baccalaureate and graduate degrees in cross-cultural studies, education and social work as well as a Ph.D. in indigenous studies. CRCD also offers workshops, continuing education and short-term courses, developmental studies, credit for prior learning and other nondegree student services.

CRCD community campuses include Northwest (http://www.nwc.uaf.edu) (Nome), Kuskwokwim (http://www.bethel.uaf.edu) (Bethel), Bristol Bay (http://www.uaf.edu/bbc) (Dillingham), Chukchi (http://www.uaf.edu/chukchi) (Kotzebue) and Interior Alaska (http://www.uaf.edu/iac) (Fairbanks, which administers six centers throughout the Interior).

CRCD serves nearly two-thirds of Alaska, encompassing 160 primarily Alaska Native Arctic, sub-Arctic and coastal communities. At least 16 indigenous languages are spoken in the region served by CRCD, and the economy spans subsistence hunting and fishing, small-scale village development and cooperatives, and large-scale international corporate development. The College of Rural and Community Development focuses on responding to students and partners to develop the economic and social well-being of Alaska Native communities and beyond. For more information, visit http://www.uaf.edu/rural/ or call 907-474-7143.

Research Institutes, Centers and Consortia

UAF’s location in Interior Alaska provides easy access to glaciers, permafrost, the Pacific and Arctic oceans, and other elements of a sub-Arctic climate. Accordingly, several research centers and academic departments focus their scholarly work on issues particular to the North. These include the environmental impact of human activities, development of renewable and nonrenewable resources and energy sources, and the understanding and preservation of indigenous northern cultures.

The vice chancellor for research oversees all university research activities and has primary responsibility for the university’s research mission. The VCR office directs the development of university research policies and oversees sponsored programs, research integrity, and intellectual property and licensing.

Assistantships are available for graduate students working on research with faculty in many research institutes and centers. Each researcher has a joint appointment with an academic department. Any student interested in specific faculty research projects and the availability of assistantships should contact the appropriate academic department.

Agricultural and Forestry Experiment Station

The Agricultural and Forestry Experiment Station conducts research to enhance the quality of life in Alaska through development of natural, economic and human resources. Research emphasizes factors typical of high latitudes and is designed to provide the information and technology needed to manage renewable resources for the economic and social well-being of Alaskans. This work includes studies of natural and manipulated ecosystems, sustainable soil productivity, food production, food security, genetics for improved plant and animal productivity, and enhanced livestock production. Additional research involves economic and legal aspects of resource use, silviculture and forest management, resource use for tourism and recreation, and education and communications in resources management.

AFES, in cooperation with state and federal agencies, conducts research at sites in Fairbanks, Palmer, Delta Junction and Nome. AFES faculty have a leadership role in the Long-Term Ecological Research program funded by the National Science Foundation. This research, which is determining the structure and function of northern boreal forest ecosystems, forms the basis for sustainable forest management practices.

AFES faculty represent the disciplines of agronomy, animal science, economics, forestry, horticulture, land use planning, outdoor recreation, plant pathology, range science, resource policy and law, and soil science. For more information, visit http://www.uaf.edu/snre/research/afes/ or call 907-474-7188.

Alaska Cooperative Fish and Wildlife Research Unit

The Cooperative Fish and Wildlife Research Unit is jointly sponsored and financed by the U.S. Geological Survey, UAF, the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, and the Wildlife Management Institute. The unit supports and guides graduate training in fisheries and wildlife biology and management.

Wildlife research is directed toward habitat relationships, avian ecology, wildlife population dynamics, and the impact of northern development on wild animals and their habitats. Fisheries research focuses on the ecology and fisheries of Alaska freshwater ecosystems, and evaluation and development of cold-water fisheries techniques.

For more information, visit http://www.akcfwru.uaf.edu or call 907-474-7661.

Alaska Native Language Center

The Alaska Native Language Center was established by state legislation in 1972 to document and preserve the 20 Indian, Aleut and Eskimo languages in Alaska. It is the major center in the United States for the study of Eskimo and northern Athabascan languages. ANLC publishes its findings in dictionaries, grammars, story collections and research papers. The Alaska Native Language Archive houses a valuable collection of manuscript materials in and on Alaska Native languages, including word lists and documentation dating to the late 1700s. The archive is available to scholars and students and is housed at the Rasmuson Library.

As part of the College of Liberal Arts, ANLC’s teaching program includes a B.A. in Yup’ik or Inupiaq Eskimo, an A.A.S. degree or certificate in Native language education, and special classes in language literacy. A B.A. in Yup’ik language and culture teaches major courses entirely in the Yup’ik language.

For more information, visit http://www.uaf.edu/anlc/ or call 907-474-7874.

Alaska Quaternary Center

The Alaska Quaternary Center, established in 1982, is a focal point for interdisciplinary Quaternary studies and research at UAF. The Quaternary Period spans the past two million years, a time of glacial-interglacial climate oscillations, floral and fauna migrations, mammalian extinctions and human evolution. Quaternary studies thus encompass scientific
investigations of geologic, climatic, biologic and human systems of the past and present. The AQC comprises researchers in the anthropology, biology and wildlife, and geology and geophysics departments, the School of Natural Resources and Extension, the Institute of Marine Science, the Institute of Arctic Biology and the Geophysical Institute.

The AQC is housed within the Department of Geology and Geophysics (http://www.uaf.edu/geology) and the College of Natural Science and Mathematics (http://www.uaf.edu/cnsm). The center sponsors seminars and workshops and hosts visiting speakers from countries throughout the world. Quaternary scholars from UAF regularly collaborate with Canadian, Russian and European colleagues conducting research in Alaska, Siberia and the Yukon, as well as Africa, Mongolia and western Europe. The AQC plays an important role in Northern science during this time of increasing interest in studies of global change, biodiversity and other aspects of Arctic climates and ecosystems.

For more information, call 907-474-5433 or visit http://www.uaf.edu/aqc/.

**Alaska Sea Grant**

Alaska Sea Grant is a partnership between the National Oceanic and Atmospheric Administration and the University of Alaska Fairbanks. Alaska Sea Grant is administered by the UAF College of Fisheries and Ocean Sciences (http://www.uaf.edu/cfos).

Alaska Sea Grant enhances the sustainable use and conservation of Alaska’s marine and freshwater resources through research, outreach and education.

ASG supports researchers and university graduate students contributing new knowledge about healthy coastal ecosystems, sustainable fisheries and resilient coastal communities. Alaska Sea Grant also recruits students into career-building national and state scholarships and fellowships in marine policy, fisheries population dynamics and other marine fields.

Alaska Sea Grant Marine Advisory Program faculty are located in eight coastal communities and build partnerships that provide technical assistance to support economic development, marine literacy, workforce development and resource management. Thousands of adults and youth across the state attend workshops and presentations by ASG each year.

As part of its education mission, ASG supports marine literacy among K-12 teachers and students through curriculum and other learning resources and training. ASG produces publications and website resources available via an online bookstore that help the public understand Alaska’s diverse marine ecosystem. ASG also keeps scientists connected through community-based regional scientific conferences and through scientific symposia, including the international Lowell Wakefield Fisheries Symposium series.

ASG is funded by UAF and NOAA, with support from various public and private partners.

For more information visit http://www.alaskaseagrant.org or call 907-474-7086.

**Center for Cross-Cultural Studies**

Established in 1971, the Center for Cross-Cultural Studies is a teaching, research and development unit administered through the UAF College of Liberal Arts. It promotes programs that concentrate on the needs of Alaska’s indigenous societies, with particular regard to education and rural issues.

The center offers academic degree programs and course work in cross-cultural studies. It designs and conducts basic and applied research projects, develops and evaluates alternative educational strategies for Alaska schools, and disseminates findings on current research in education and rural community development.

The center gives technical support and information to school districts, social service agencies, Native corporations, tribal governments, community colleges, and state and federal agencies in rural Alaska. It provides direction for improving educational, professional and community development opportunities for rural Alaskans, and it is a forum for examining those issues. Curricula incorporating indigenous knowledge and Native ways of knowing are available through the Alaska Native Knowledge Network on the web at http://www.uaf.edu/ankn/.

For more information, visit http://www.uaf.edu/cxcs/, call 907-474-1902 or email uaf-cxcs@alaska.edu.

**Geophysical Institute**

Founded in 1948, the Geophysical Institute is a world-renowned center for the study of geophysics from the sun to the center of the Earth.

Proximity to the Arctic provides excellent opportunities for high-latitude geosciences. Major research programs are underway in space physics, atmospheric science, seismology, volcanology, satellite remote sensing, tectonics and sedimentation. The institute operates a rocket range for space research and a satellite ground station with processing and archiving capabilities for earth science support. In addition, the Alaska Volcano Observatory (http://avo.alaska.edu), the Alaska Earthquake Center (http://earthquake.alaska.edu), Alaska Climate Research Center (http://climate.gi.alaska.edu) and the Alaska Center for Unmanned Aircraft Systems Integration (http://acuasi.alaska.edu) are located at the institute. More than 75,000 books, 350 journals and other specialized media are maintained at the Keith B. Mather Library (http://www.gi.alaska.edu/facilities/mather-library).

GI faculty and students benefit from the coupled activities of education and research. Undergraduate and graduate students find work in research programs while gaining academic credit toward their degrees. Most GI faculty have joint appointments, providing teaching opportunities at the College of Natural Science and Mathematics or the College of Engineering and Mines.

The institute focuses on the needs of Alaska, using geophysical data as the basis for decision-making tools. Examples include monitoring earthquakes and volcanic eruptions leading to hazard alerts to federal and state agencies. Remote sensing specialists use satellite and airborne observations to help fight forest fires and monitor the health of Alaska’s ecosystems. Institute scientists run computer simulations of tsunamis, aiding coastal communities in developing emergency evacuation plans. The institute has programs reaching out to K-12 schools with scientific curricula to educate and motivate potential science students.

More than 500 permanent field sites are operated throughout Alaska and are associated with the Poker Flat Research Range, the Alaska Earthquake Center, the Alaska Volcano Observatory and the Permafrost Research Laboratory.
Institute of Arctic Biology

The Institute of Arctic Biology is Alaska’s principal research and educational unit for investigating high-latitude biological systems and providing policymakers knowledge to interpret, predict and manage biological systems through integration of research, student education and service to Alaska and the nation.

IAB research focuses on wildlife and conservation biology, including caribou, moose, polar bears and wildfowl; ecology, biogeochemistry, ecosystems and modeling of Arctic landscapes; climate change; physiology, including hibernation and thermogenesis; evolutionary biology; human, plant and animal genetics; plant-animal interactions; and human health disparities, nutrition and physical activity using a community-based, participatory approach.

IAB, established by the Alaska Legislature and the UA Board of Regents in 1962, is a world leader in Arctic research and is an academic gateway to study of the circumpolar Arctic. IAB administers several specialized research programs and facilities. Toolik Field Station (http://toolik.alaska.edu) is an internationally recognized Arctic research station that annually hosts hundreds of scientists from around the world. The Center for Alaska Native Health Research (http://www.uaf.edu/canhr) investigates weight, nutrition and health in Alaska Natives. The Bonanza Creek Long-Term Ecological Research program (http://www.lter.uaf.edu) focuses on the long-term consequences of climate change and disturbance in Alaska boreal forests. The Alaska IDEA Networks of Biomedical Research Excellence program seeks to enhance biomedical research infrastructure in Alaska and fund research and student training focused on the interface of health, disease and the environment in people and animals. The Alaska Cooperative Fish and Wildlife Research Unit (http://www.akcfwr.uaf.edu), part of the U.S. Geological Survey, promotes research and graduate student training in the ecology and management of fish and wildlife. The Alaska Geobotany Center (http://www.geobotany.uaf.edu) is dedicated to understanding northern ecosystems through GIS, remote sensing and field experiments. The Spatial Ecology Lab provides state-of-the-art spatial analysis of ecological data and development, testing, and application of spatially explicit ecological models. IAB’s research greenhouse provides a year-round environment for research and education. The Core DNA Lab keeps UAF at the cutting edge of molecular analysis.

For more information, call 907-474-7460, visit http://www.iab.uaf.edu or follow @ArcticBiology on Twitter.

Institute of Marine Science

The Institute of Marine Science conducts marine science studies in the world’s oceans, with special emphasis on Arctic and Pacific sub-Arctic waters.

The faculty provide expertise in chemical, geological and physical oceanography and marine biology. Instruction is carried out through a minor in marine science and the graduate program in marine sciences and limnology in the School of Fisheries and Ocean Sciences, where degrees are offered at the master’s and doctoral levels.

Research efforts cover a wide range of disciplines, and some projects are components of large national and international cooperative programs that are worldwide in extent. Institute of Marine Science researchers also participate in the broad marine science community through service on a variety of national and international steering committees, boards, panels and advisory committees.

Research facilities include laboratories on the Fairbanks campus; the Seward Marine Center (http://www.sfos.uaf.edu/smc), a major coastal facility in Seward; the Kasitsna Bay Laboratory (http://www.sfos.uaf.edu/sites/kbay), a marine biology field station on Kachemak Bay; and the 261-foot global class, ice-strengthened Research Vessel Sikuliaq. The Seward Marine Center supports a high-quality seawater system and excellent biological and chemical laboratories, and is the Sikuliaq’s home port. The Alaska SeaLife Center, a private, state-of-the-art mammal and bird research and exhibition facility adjacent to the Seward Marine Center, also offers outstanding research facilities.

Institute of Marine Science research programs include the Virtual Tsunami Center; Alaska Natural Geography in Shore Areas; Census of Marine Life; Ocean Acidification Research Center; GAK1, Gulf of Alaska CTD Time Series; GOAIERP, Gulf of Alaska Integrated Ecosystem Research Program; RUSALCA, Russian-American Long-Term Census of the Arctic; and NEWNET/ORION, a radiation and climatological monitoring program through autonomous stations in Fairbanks, Seward, Nome, Kotzebue, Point Hope and Barrow. Laboratories and specialists cover areas including acoustics; algae, biological, chemical, fisheries, geological and physical oceanography; marine biology; mammals; pathology and ecosystems; remote sensing; seagrass studies; and underwater instrumentation.

The main offices, laboratories and computer facilities of IMS are located in the William A. O’Neill, Laurence Irving II and Arctic Health Research buildings on the west ridge of the Fairbanks campus. For more information, visit http://www.ims.uaf.edu or call 907-474-7210.

Institute of Northern Engineering

The Institute of Northern Engineering is the research enterprise for the College of Engineering and Mines. INE faculty and students are engineering solutions for the world’s cold regions and beyond. The institute is home to many of the world’s leading researchers in cold weather and cold climate science and engineering. INE research and support span the engineering disciplines, offering studies and expertise in energy production, modeling and testing of mechanical systems, and environmental engineering and hydrology, as well as Arctic infrastructure, and mining and petroleum development. INE also participates in many cross-institute endeavors.

The institute includes the Alaska Center for Energy and Power (http://acep.uaf.edu), Alaska University Transportation Center (http://ine.uaf.edu/autc), Mineral Industry Research Laboratory (http://ine.uaf.edu/mirl), Petroleum Development Laboratory (http://ine.uaf.edu/pdl), and Water and Environmental Research Center (http://ine.uaf.edu/werc). ACEP houses the Alaska Hydrokinetic Energy Research Center, and WERC serves as the home of the Alaska Stable Isotope Facility. External grant and research support for INE programs has been more than $20 million annually since 2011. Most of INE’s researchers are full-time faculty in the College of Engineering and Mines, allowing research results to reach the classroom quickly.

INE offers diverse interdisciplinary research opportunities, challenging students to tackle wide-ranging engineering topics. Students gain knowledge and experience through hands-on engagement, setting them apart in the engineering job market.
To get started with your northern engineering research or studies, visit http://www.uaf.edu/ine/ or call 907-474-5457.

International Arctic Research Center

The International Arctic Research Center was established in 1999 as a cooperative research institute supported by both the U.S. and Japanese governments. Funding comes from the National Science Foundation, the Department of Energy, and the National Oceanic and Atmospheric Administration in the U.S., and from the Japan Agency for Marine-Earth Science and Technology, and Japan Aerospace Exploration Agency.

IARC serves as a focal point of excellence for international collaboration and provides the Arctic research community with an unprecedented opportunity to share knowledge about science in the Arctic, with an emphasis on global climate change research. IARC’s mission is to foster Arctic research in an international setting to help the nation and the international community to understand, prepare for, and adapt to the pan-Arctic impacts of climate change. In order to fulfill that mission, IARC provides an integrated science and service program for the benefit of the Arctic community.

Key elements of that program include analysis, synthesis and provision of Arctic climate information, including Arctic Ocean hydrographic information for scientists, students, decision-makers and the public; support and coordination of Arctic system modeling; and serving as a gateway or Arctic climate science coordination center for Alaska and the Arctic research community, with special attention to collaboration with international scientists and institutions.

IARC conducts an internationally popular summer school for young researchers and holds workshops on the integration and synthesis of research. IARC also supports several K–12 outreach projects.

IARC is located in the Akasofu Building. For more information, call 907-474-6016 or visit http://www.iarc.uaf.edu.

Juneau Center, College of Fisheries and Ocean Sciences

The Juneau Center is home to 10 UAF fisheries faculty members and about 40 students enrolled in the B.A., B.S., M.S. and Ph.D. fisheries and marine biology programs. Four UAS biology and marine biology faculty hold joint appointments in the UAF Department of Fisheries and supervise UAF graduate students based at the Juneau Center.

Faculty supervise students’ research on a broad array of biological problems in laboratories that specialize in quantitative stock assessment, biology and ecology of marine and freshwater species, molecular genetics, behavioral ecology, marine policy, and other fields of study. Laboratories at the Juneau Center include specialized facilities for seawater culture of marine animals and plants, quantitative (computer) analysis and fisheries stock assessment, geographic information systems, molecular genetics, salmon culture, and marine ecology. Juneau Center students also work in laboratories and facilities of other agencies in Juneau such as NOAA Fisheries’ Auke Bay Laboratory and Ted Stevens Marine Research Institute, the U.S. Geological Survey’s Glacier Bay Field Station, and the Alaska Department of Fish and Game’s Mark, Tag and Age Lab.

The center is adjacent to the National Marine Fisheries Service Ted Stevens Marine Research Institute. For more information, visit http://www.uaf.edu/cfos/about-us/locations/juneau/ or call 907-796-6441.

Kodiak Seafood and Marine Science Center

The Kodiak Seafood and Marine Science Center contributes scientific and technical expertise through teaching, research and service in fisheries, seafood science and technology, and marine biology. Faculty at KSMSC teach undergraduate and graduate classes in fisheries, seafood and marine biology, and provide informal education and training for industry, K–12 students and the public. KSMSC is the hub of applied seafood research for the state and also home to research related to marine mammal ecosystems, harmful algal blooms, and food science and marketing. Public service is provided through seafood and fishing industry consultations and partnerships with local organizations for economic development and increasing understanding of the local environment.

KSMSC faculty have expertise in fisheries, nutrition, food chemistry, food microbiology, marine mammal biology, seafood processing, seafood economics and seafood engineering. The Kodiak Center provides ready access to coastal and offshore marine systems in the Gulf of Alaska as well as freshwater streams and lakes.

The center is near the NOAA Kodiak Fisheries Research Center and the Alaska Department of Fish and Game. For more information, call 907-486-1500 or visit https://www.uaf.edu/cfos/about-us/locations/kodiak/.

UArctic

UAF is a founding member of UArctic (originally the University of the Arctic), a cooperative network of universities, colleges and other organizations committed to higher education and research in the North. The consortium’s goal is to create a strong, sustainable circumpolar region by empowering northerners and northern communities through education and shared knowledge. As part of this network, UAF participates in research and teaching partnerships and is a member of the student exchange program north2north, which provides opportunities for students from UArctic member institutions to experience different northern regions firsthand, and to share experiences face-to-face by allowing students to study at other UArctic institutions. For more information visit http://www.uaf.edu/uarctic/ or call 907-474-6516.

University of Alaska Museum of the North

Voted the "Best Museum in Alaska," the University of Alaska Museum of the North is a vital component of UAF’s research and education facilities as well as a thriving visitor attraction.

The museum’s research collections hold more than 1.4 million artifacts and specimens representing millions of years of biodiversity and more than 11,000 years of cultural traditions in the North. These collections form the foundation for the museum’s exhibits and education programs and serve as a critical source of data for issues unique to the circumpolar North. Using the collections, university students work with the museum’s faculty curators on original research aimed at interpreting the region’s dynamic environment and cultures.
The museum’s Rose Berry Alaska Art Gallery features 2,000 years of Alaska art — from ancient ivory carvings to contemporary sculptures. In the Gallery of Alaska, exhibit highlights include the state’s largest gold display, extensive displays of Alaska Native art and artifacts, and Blue Babe, a 36,000-year-old mummified steppe bison.

In 2014, the museum began a five-year project to renovate the Gallery of Alaska. The current exhibit was installed in 1980 with minimal improvements in the intervening years. Since then, Alaska, the world and our understanding of it has changed. There are many new stories to tell. The new gallery will be immersive, allowing children and adults to engage with hands-on elements. By redesigning the casework and mounting techniques, the museum will also add to the sustained life of the collections. The new exhibits will be installed one section at a time, allowing the Gallery of Alaska to remain open to the museum’s nearly 90,000 annual visitors. The museum is raising funds from local and private sources to complete the project by 2018.

The museum also hosts several special exhibits each year. In addition, the museum presents artists’ residencies, lectures and family programs on a variety of Alaska topics, and runs the museum store, featuring Alaska jewelry, books and Alaska Native artwork.

For more information, visit http://www.uaf.edu/museum/ or call 907-474-7505.

The UAF Experience

UAF – Then and Now

UAF’s Fairbanks campus is four miles west of downtown Fairbanks, on a low ridge overlooking the Chena and Tanana river floodplains. Artifacts found on the bluff tell us tribal groups used the hill beginning perhaps 3,500 years ago. It offered a wide view of the flats below and probably served as a base camp for hunting and gathering.

THE EARLY YEARS

Gold discoveries in the early 1900s brought sudden changes to the Tanana Valley. In 1906 the hill where UAF now stands became part of a federal Agricultural Experiment Station, and in 1915 the U.S. Congress approved money and transferred a piece of land from this station to establish a school of higher education. The institution began as the Alaska Agricultural College and School of Mines, focusing on research and teaching in support of agriculture and mining. Two years later the Alaska Territorial Legislature added funding, and in 1922, when the first building was completed, the college opened its doors to students. In the first semester, a faculty of six offered 16 classes to a student body of 12. Commencement in 1923 consisted of a single graduate.

The institution quickly began to grow. In 1931 the federal government transferred the entire Agricultural Experiment Station to the college. In 1935 the Alaska Territorial Legislature changed the institution’s name to the University of Alaska to reflect the school’s expanding role in research, teaching and public service for all Alaska. By then, faculty and course offerings had grown to include liberal arts, science and engineering.

World War II brought a rapid influx of population and development to the territory. Wartime national awareness of the need for scientific polar research in the interests of defense and communications led to the establishment in 1946 of the Geophysical Institute. Since its inception, the GI has earned an international reputation for studies of the Earth and the physical environment at high latitudes. The university awarded its first Ph.D. degree to a geophysics student in 1955.

STATEHOOD AND BEYOND

The University of Alaska had a significant role in the statehood movement of the 1950s, when the Constitutional Convention was held on campus. The Alaska Constitution was drafted in what is now Constitution Hall and signed in stately Signers’ Hall, now the home of UAF student service and administrative offices. Alaska became the nation’s 49th state in 1959.

Research expanded broadly in the decade of the 1960s with the establishment of institutes in several disciplines. The Alaska Legislature created the Institute of Marine Science in 1960 and the Institute of Arctic Biology two years later. Since 1969 the Geophysical Institute has operated Poker Flat Research Range, providing launch facilities for NASA and the Department of Defense. Poker Flat is the only university-owned rocket range in the world.

In 1970 the university was designated a federal Sea Grant institution for marine research. Alaska Sea Grant develops and supports research, education, and outreach programs and partnerships to help sustain economic development, traditional cultural uses, and conservation of Alaska’s marine, estuarine and coastal watershed resources. Stations in Kodiak and Juneau are also actively involved in marine and fisheries research.

In 1972 the Alaska Legislature established the Alaska Native Language Center and provided operating funds. Since then the university has supported research, documentation and teaching of the state’s 20 Native languages.

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Meanwhile, the campus in Fairbanks continued to expand. The University of Alaska Museum of the North, one of the state’s most popular visitor attractions, moved into the Otto Geist Building in 1980. An expansion completed in 2006 nearly doubled the museum’s size and added a research center, learning center and Alaska art gallery. The museum’s unique collection offers the public a view of the rich and varied cultures of the North.

In 2014, the museum began a five-year project to renovate the Gallery of Alaska. The current exhibit was installed in 1980 with minimal improvements in the intervening years. Since then, Alaska, the world and our understanding of it has changed. There are many new stories to tell. The new gallery will be immersive, allowing children and adults to engage with hands-on elements. By redesigning the casework and mounting techniques, the museum will also add to the sustained life of the collections. The new exhibits will be installed one section at a time, allowing the Gallery of Alaska to remain open to the museum’s nearly 90,000 annual visitors. The museum is raising funds from local and private sources to complete the project by 2018.

The museum also hosts several special exhibits each year. In addition, the museum presents artists’ residencies, lectures and family programs on a variety of Alaska topics, and runs the museum store, featuring Alaska jewelry, books and Alaska Native artwork.

For more information, visit http://www.uaf.edu/museum/ or call 907-474-7505.

The UAF Experience

UAF – Then and Now

UAF’s Fairbanks campus is four miles west of downtown Fairbanks, on a low ridge overlooking the Chena and Tanana river floodplains. Artifacts found on the bluff tell us tribal groups used the hill beginning perhaps 3,500 years ago. It offered a wide view of the flats below and probably served as a base camp for hunting and gathering.

THE EARLY YEARS

Gold discoveries in the early 1900s brought sudden changes to the Tanana Valley. In 1906 the hill where UAF now stands became part of a federal Agricultural Experiment Station, and in 1915 the U.S. Congress approved money and transferred a piece of land from this station to establish a school of higher education. The institution began as the Alaska Agricultural College and School of Mines, focusing on research and teaching in support of agriculture and mining. Two years later the Alaska Territorial Legislature added funding, and in 1922, when the first building was completed, the college opened its doors to students. In the first semester, a faculty of six offered 16 classes to a student body of 12. Commencement in 1923 consisted of a single graduate.

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TODAY

UAF’s colleges and schools offer degrees and certificates in 113 disciplines with a variety of vocational and technical programs. Graduate degrees are available in a wide range of academic study. UAF is internationally known for its Pacific Rim and circumpolar North research. It is consistently among the top 100 universities in the nation for funding from the National Science Foundation. UAF is the primary doctoral degree-granting institution in Alaska, offering Ph.D. degrees in anthropology, indigenous studies, several of the physical and natural sciences, mathematics and engineering. Master’s degrees are offered in almost 40 fields in the humanities, social sciences, Arctic and Northern studies, physical and natural sciences, and in professional fields such as engineering, justice, education and business administration. Interdisciplinary programs are possible for students who have a research focus in areas where UAF has faculty expertise and research facilities.

In 2017, UAF celebrates 100 years of making important contributions to Alaska, helping find solutions to the state’s unique challenges in areas like Arctic engineering, wildlife biology, health care and education. UAF helps power Alaska’s economy by turning students into professionals for Alaska’s workforce.

Students

Individualism and diversity are Alaska traditions. At UAF, students find not only a broad mix of cultures and ages, but also a climate of respect for individual rights and preferences. A student from a rural Alaska village can share knowledge and insights with others from places as distant as Tallahassee or Tokyo. UAF’s enrollment in fall 2017 was 8,720 students. Of those, 58 percent are female and 41 percent male; 88 percent are undergraduate and 12 percent are graduate students. UAF students hail from all 50 states and 50 foreign countries.

Many UAF students are nontraditional. They study at night or after work, and balance schoolwork with family responsibilities. The university offers a wide variety of evening and weekend classes. UAF students can attend classes through distance delivery from remote areas of Alaska or from anywhere in the world. Using computers, telephones and the Internet, students can take courses or work toward their degrees without leaving home.

Many students take advantage of UAF’s exchange programs to study at colleges and universities around the world, or through the National Student Exchange program, which offers studies at universities throughout the United States. There are more than 130 different student organizations on campus, with that number going up all the time. Students produce the weekly Sun Star online news site, run KSUA, the campus radio station, and participate in scores of special interest groups.

Faculty

At UAF you find faculty members who are among the best in the country, and because of the low 11.1 student-faculty ratio, you receive more personal attention here than you would at almost any other public university in the nation. Once you have chosen a major, you will be assigned a faculty advisor from your academic department. Your advisor will help you choose classes each semester and will explain programs and requirements. You will get to know the faculty not just as professors, but as friends, advisors and mentors. Education is an individual process, different for each person. At UAF, you are an individual, not just a face in the crowd.

UAF’s Mission

The University of Alaska Fairbanks is a Land, Sea, and Space Grant university and an international center for research, education, and the arts, emphasizing the circumpolar North and its diverse peoples. UAF integrates teaching, research, and public service as it educates students for active citizenship and prepares them for lifelong learning and careers.

CORE THEMES

- **Educate**: Undergraduate and graduate students and lifelong learners
- **Research**: Create and disseminate new knowledge, insight, technology, artistic and scholarly works
- **Prepare**: Alaska’s career, technical and professional workforce
- **Connect**: Alaska Native, rural and urban communities by sharing knowledge and ways of knowing
- **Engage**: Alaskans through outreach for continuing education and community and economic development

Commitment to Quality

UAF has been accredited since 1934 by the Northwest Commission on Colleges and Universities. UAF acts continually to assess and improve the educational experience for its students. Students evaluate their teachers at the end of each semester; those student opinion reports are available at [http://www.asuafstudentgov.org/teacher-and-course-evaluations1/](http://www.asuafstudentgov.org/teacher-and-course-evaluations1/). Faculty and administrators evaluate courses in the core curriculum every year. Each degree program and certificate is assessed at least every five years. Results are used to change and improve the education provided by UAF. The learning outcomes expected for each degree program can be viewed at [http://www.uaf.edu/provost/assessment-review/assessment/](http://www.uaf.edu/provost/assessment-review/assessment/).

Catalog Addendum

There are no catalog addenda at this time.
GETTING STARTED

Applying for Admission: Occupational Endorsement Programs

When to Apply
Applications for admission to occupational endorsement programs are due no later than June 15 for fall semester, Nov. 1 for spring semester and May 1 for summer semester.

High school seniors are encouraged to apply for admission as early as the first semester of their senior year and should provide a high school transcript including a list of courses in progress.

How to Apply
To be admitted to UAF, a student must:

1. Submit an application for admission
   Apply online at http://www.uaf.edu/admissions/. Applications must be received before the published deadlines. There is no fee to apply for an occupational endorsement program.

2. Submit transcripts
   Most applicants to occupational endorsement programs are not required to submit high school or college transcripts, but all are strongly encouraged to do so. Transfer students who want to receive credit for prior work must submit official transcripts.

Admission Requirements
For admission to occupational endorsement programs, official documentation must be provided showing that the applicant meets program age requirements by the first day of the semester (see individual program descriptions for minimum age requirements).

Program Completion
Occupational endorsement programs require between 9 and 29 credit hours that will be posted to the student’s transcript upon completion and approval by the academic department. The credit hours may be applied to other undergraduate degree programs when applicable. Students should check with an advisor for the specific requirements for their program.

Where to Get More Information
Office of Admissions
University of Alaska Fairbanks
2nd floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: uaf-admissions@alaska.edu
Online: http://www.uaf.edu/admissions/
Telephone: 907-474-7500
Toll free: 800-478-1823
Fax: 907-474-7097

Applying for Admission: Certificate or Associate Degree Programs

When to Apply
Applications for admission to certificate or associate degree programs are due no later than June 15 for fall semester, Nov. 1 for spring semester and May 1 for summer semester.

High school seniors are encouraged to apply for admission as early as the first semester of their senior year and should provide a high school transcript including a list of courses in progress. Transfer students should apply at least three to four months before the beginning of the semester in which they plan to enroll.

How to Apply
To be admitted to UAF, a student must:

1. Submit an application for admission
   Apply online at http://www.uaf.edu/admissions/. Applications must be received before the published deadlines, along with a $40 nonrefundable application fee. Applications submitted after the published deadlines have a $65 nonrefundable application fee and are processed in the order they are received. They may not be processed by the beginning of the semester.

2. Submit transcripts
   Most applicants to certificate and associate degree programs are not required to submit high school or college transcripts, but all are strongly encouraged to do so. Transfer students who want to receive credit for prior work must submit official transcripts.

3. Submit official test results
   Certificate and associate degree applicants with fewer than 30 semester credit hours must submit the results of the ACT Plus Writing, SAT or ACCUPLACER test taken within the last two years for English and composition placement. Students will also need to submit ALEKS test scores taken within the last year for placement into math, DEV or any course that requires a math prerequisite. Contact Testing Services at 907-474-5277 or your high school guidance office for information concerning the ACT Plus Writing, SAT or ACCUPLACER tests. Visit https://www.alaska.edu/aleks/ to take the ALEKS test.

INTERNATIONAL STUDENTS
See Applying for Admission: International Students (p. 32) page for additional information.

Admission Requirements
For admission to associate/certificate programs, official documentation must be provided showing that the applicant:

A. is at least 18 years old, or
B. has a high school diploma, or
C. has a General Educational Development (GED) diploma.

Applicants under the age of 18 who will not have a high school diploma or GED before the start of their first semester are not admissible but may take courses as a nondegree student. Please note that in order to qualify for federal financial aid, students must have either a high school diploma or a GED.
TRANSFER STUDENTS
Transfer students are eligible for admission if they left their previous accredited institution(s) in good standing. Admission status will be determined on an individual basis if a student attended an unaccredited/nonregionally accredited postsecondary institution.

HIGH SCHOOL STUDENTS
High school students may take classes at UAF. There are two enrollment options for students interested in certificate or associate degree programs: Secondary Student Enrollment and TECH PREP. Both have specific registration requirements but do not require admission to UAF.

HOME-SCHOoled STUDENTS
Home-schooled students may be admitted to an associate or certificate program if the student is at least 18 years old, holds a GED, graduated from a state-sponsored correspondence program with a high school diploma, or with the approval of the director of admissions.

After Acceptance
Qualified applicants will receive a letter of acceptance once all items are received and evaluated. Qualified applicants who are in their last year of high school or are attending another college will receive incomplete acceptance. Acceptance becomes final when the Office of Admissions receives official transcripts showing the student has satisfactorily completed all work in progress and that a high school diploma or GED has been earned. Acceptance to UAF is final only when the Office of Admissions has approved all necessary credentials.

For additional program-specific application requirements, please see program descriptions.

REQUEST TO POSTPONE
An offer of admission to UAF is valid for the semester for which the applicant applied. Requests to postpone admission until a later semester may be made to the Office of Admissions. Admission may be postponed for up to one calendar year.

READMISSION OF FORMER DEGREE STUDENTS
Undergraduate degree students who choose not to enroll for a semester or more may be eligible to re-enroll in their original degree program without reapplying for admission. Students remain eligible to register for classes if:

• they have not been academically disqualified,
• they have not attended a non-UA institution since they were last enrolled at UAF,
• their lapse in enrollment is less than two years, and
• they are continuing with the same degree program.

Students who meet all of the above requirements should consult with their academic advisor and register for classes. Students who do not meet all of these requirements should submit a new application for admission along with the $40 application fee and transcripts of any non-UA course work taken. Students who are unsure about their status should contact the Office of Admissions.

Fresh Start for Returning Students
Fresh Start can offer a new beginning for students who performed poorly at UAF and have taken at least a two-year break from classes. Students who withdrew from school or were dismissed for academic reasons may apply for readmission through the Fresh Start program and request that their entire prior academic record be disregarded. Students who qualify for Fresh Start will begin their college study anew, with no credits attempted or earned and no quality points reflected in future GPA calculations. Fresh Start can be used only once.

All prior course work will remain part of the student’s overall academic record and appear on transcripts, but none of the previously earned credits can be used in a new program. These credits will be included only in GPA computations for graduation with honors (see Graduation with Honors (p. 95)). A student admitted under Fresh Start may be allowed advanced standing or a waiver of requirements just as any other student, but will not be allowed credit by exam for courses lost in Fresh Start. Students interested in Fresh Start should contact the Office of Admissions.

Readmission of Service Members
The Higher Education Opportunity Act of 2008 requires that students who left school to serve in the uniformed services be readmitted into the same program with the same standing they had when they left. UAF allows for special readmission of these students. More information is available at http://www.uaf.edu/veterans/.

Where to Get More Information
Office of Admissions
University of Alaska Fairbanks
2nd floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: uaf-admissions@alaska.edu
Online: http://www.uaf.edu/admissions/
Telephone: 907-474-7500
Toll free: 800-478-1823
Fax: 907-474-7097

Applying for Admission: Bachelor’s Degree Programs

When to Apply
Freshman and transfer applications for admission to a bachelor’s degree program are due no later than June 15 for fall semester, Nov. 1 for spring semester and May 1 for summer semester.

Applications are processed in the order they are received. Applications received after the published deadlines may not be processed by the beginning of the semester.

High school seniors are encouraged to apply for admission as early as the first semester of their senior year and should provide a high school transcript including a list of courses in progress. Transfer students should apply at least three to four months before the beginning of the semester in which they plan to enroll.

How to Apply
To be admitted to UAF, a student must:

1. Submit an application for admission
Apply online at http://www.uaf.edu/admissions/. Applications must be received before the published deadlines, along with a $50 nonrefundable application fee. Applications submitted after the published deadlines have a $75 nonrefundable application fee.
and are processed in the order they are received. They may not be processed by the beginning of the semester.

2. Submit transcripts
   To be considered official, transcripts must arrive in sealed envelopes from each institution attended.
   **High school transcripts** — Applicants with no college course work or fewer than 30 semester credit hours of college credit must submit official high school transcripts. Students currently enrolled in high school may submit unofficial, in-progress transcripts for admissions review. Acceptance becomes final when official transcripts with degree earned are received.
   **College transcripts** — Applicants who have college-level course work must send official college or university transcripts to UAF.
   **International** — See Applying for Admission: International Students (p. 32) page for additional information.

3. Submit official test results
   Freshman and transfer applicants with fewer than 30 semester credit hours must submit the results of either the ACT or the SAT examination. Please note that the ACCUPLACER, ASSET, COMPASS, ALEKS or other placement tests do not satisfy this requirement.

INTERNATIONAL STUDENTS
See Applying for Admission: International Students (p. 32) page for additional information.

Admission Requirements
For admission to baccalaureate-level programs, applicants must fulfill either:

**Option 1:**

a. have a high school diploma, and
b. pass the 16-credit high school core curriculum (see High School Entrance Requirements (p. 29)) with a GPA of at least 2.5 and
c. have a cumulative GPA of 3.0. No minimum ACT or SAT score is required, OR

**Option 2:**

a. have a high school diploma, and
b. pass the 16-credit high school core curriculum (see High School Entrance Requirements (p. 29)) with a GPA of at least 2.5, and
c. have a cumulative GPA of 2.5, and
d. submit results of the ACT with a score of 18 or SAT with a score of 970. UAF will continue to accept test scores of 1280 from the previous version of the SAT.

Admission to a specific bachelor's degree program is based on a combination of your high school GPA and completion of specific high school courses. See High School Entrance Requirements (p. 29) to specific colleges and schools within the university.

Test results from the ACT or SAT must be received before a student can be fully admitted.

HIGH SCHOOL ENTRANCE REQUIREMENTS FOR ALL BACHELOR'S DEGREE PROGRAMS

**High School Core Curriculum**
Required for all freshmen; 2.50 GPA in core; 16 credits total, which must include:

<table>
<thead>
<tr>
<th>English</th>
<th>Math</th>
<th>Social Sciences</th>
<th>Natural/Physical Sciences</th>
<th>Foreign Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 cr</td>
<td>3-4 cr in college preparatory mathematics (selected from Algebra I, II, geometry, trigonometry, elementary functions, precalculus or calculus)</td>
<td>3-4 cr (includes 1- cr lab science course in biology, chemistry or physics)</td>
<td>2 cr</td>
<td></td>
</tr>
</tbody>
</table>

**College of Engineering and Mines • College of Natural Science and Mathematics • School of Fisheries and Ocean Sciences • School of Natural Resources and Extension**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra-2 cr; Geometry-1 cr; Trigonometry-1/2 cr; At least an additional 1/2 cr of advanced math is recommended for computer science, mathematics, physics, statistics and engineering.</td>
<td>Physics or Chemistry-1 cr; Natural Sciences-1 cr; Elective-1cr.</td>
<td>Both physics and chemistry are strongly recommended for engineering.</td>
</tr>
</tbody>
</table>

**College of Liberal Arts • School of Management • College of Rural and Community Development • General Studies (undecided or exploratory)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as high school core</td>
<td>Same as high school core</td>
<td>Same as high school core</td>
</tr>
</tbody>
</table>

1 Recommended but not required.

PRE-MAJOR
Students who have not met the minimum requirements for admission to a baccalaureate degree program will be admitted to pre-major in general studies.

Students will be changed to major status when they are in good standing and have completed 14 credits at the 100 level or above with a C (2.0)
average or higher; 9 of the 14 credits must satisfy the general education requirements.

**GENERAL STUDIES**

Students accepted to bachelor’s programs that do not select a major will be admitted as general studies students. Students receiving GI assistance or veterans’ benefits may be required to change to a declared major to keep their benefits award.

**TRANSFER STUDENTS**

A transfer student is defined as someone coming into the university who has been a degree student at any other institution prior to the semester applied for. Students with more than 30 university semester credit hours must only submit prior college transcripts. Students with less than 30 semester credits must submit high school transcripts and test scores in addition to their college transcripts, and will be evaluated based on all three. Transfer students are eligible for admission to a bachelor’s program if they have a 2.0 GPA in their previous course work and left their previous institution(s) in good standing. If applying to a technical or scientific program, students may need to present a higher grade average and proof that they have completed appropriate background courses before they will be admitted. Admission status for students who have attended an unaccredited postsecondary institution will be determined on an individual basis. See Transferring Credits (p. 34) for more information.

**PROBATIONAL ACCEPTANCE**

Applicants with previous college course work may be admitted with probationary status or an academic warning if their cumulative or most recent term grade point average is less than C (2.0).

**HIGH SCHOOL STUDENTS**

High school students may take classes at UAF. The Alaska Higher Education Admission Decision (AHEAD) program requires formal admittance to UAF. The other two enrollment options, Secondary Student Enrollment and TECH PREP, have specific registration requirements but do not require admission to UAF.

**AHEAD PROGRAM**

The Alaska Higher Education Admission Decision (AHEAD) program allows qualified high school students to be formally admitted to UAF as general studies students. AHEAD students are assigned an academic advisor and follow the registration timeline for degree students. To qualify, students must have completed three-fourths of their high school core curriculum and have a cumulative 3.0 GPA or higher. Students who wish to apply to the AHEAD program may get a program application from the Office of Admissions.

**HOME-SCHOOLED STUDENTS**

Home-schooled students who have gone through a state-recognized program and have a valid high school diploma may be admitted to a bachelor’s program according to UAF admission standards. See How to Apply section (p. 28) for more information.

For home-schooled students who have not gone through a state-recognized program, admission to a bachelor’s degree is through an individual review by the director of admissions (or a designee). Applicants are required to submit scores from either the SAT or ACT and the ALEKS math placement exam prior to an admission review. Additional supporting documentation, such as letters of recommendation, may be requested for review by the director of admissions. In some cases, files will be shared with deans, department chairs or faculty for further review.

Students who have not met the minimum requirements for admission to a bachelor’s degree program may be admitted to pre-major status. Students will be changed to major status when their admissions file is complete, they are in good standing, and they have completed 14 credits at the 100 level or above with a C (2.0) average or higher, 9 credits of which must satisfy baccalaureate core requirements.

**After Acceptance**

**INCOMPLETE AND FINAL ACCEPTANCE**

Qualified applicants will receive a letter of acceptance once all required items are received and evaluated. Qualified applicants who are in their last year of high school or are attending another college will receive incomplete acceptance. Acceptance becomes final when the Office of Admissions receives official transcripts showing the student has satisfactorily completed all work in progress and that a high school diploma or GED has been earned. Acceptance to UAF is final only when the Office of Admissions has reviewed all necessary credentials.

**REQUEST TO POSTPONE**

An offer of admission to UAF is valid for the semester for which the applicant applied. Requests to postpone admission until a later semester must be made in writing to the Office of Admissions. Admission may be postponed for up to one calendar year. Students are required to notify the Office of Admissions if they are attending another school outside the University of Alaska statewide system.

**APPLYING FOR A SECOND BACHELOR’S DEGREE**

Upon official acceptance to a UAF undergraduate degree program, a student who earned a bachelor’s degree from a regionally accredited institution will be considered to have completed the equivalent of the UAF baccalaureate core.

**READMISSION OF FORMER DEGREE-SEEKING STUDENTS**

Undergraduate degree students who choose not to enroll for a semester or more may be eligible to re-enroll in their original degree program without reapplying for admission. Students remain eligible to register for classes if:

- they have not been academically disqualified,
- they have not attended a non-UA institution since they were last enrolled at UAF,
- their lapse in enrollment is less than two years, and
- they are continuing with the same degree program.

Students should be aware that poor academic performance at other campuses in the UA system may affect academic standing upon their return to UAF. Students who meet all of the above requirements should consult with their academic advisor and register for classes. Students who do not meet all of these requirements should submit an undergraduate application for admission along with the $50 application fee and transcripts of any non-UA course work taken. Students who are unsure about their status should contact the Office of Admissions.

**Fresh Start for Returning Students**

Fresh Start can offer a new beginning for students who performed poorly at UAF when they last attended and who have taken at least a two-year break from classes. Those who withdrew from school or were dismissed
for academic reasons may apply for readmission and request that their entire prior academic record be disregarded. Students who qualify for Fresh Start begin their college study anew with no credits attempted or earned, and no quality points reflected in future GPA calculations. Fresh Start can be used only once.

All prior course work will remain part of the student’s overall academic record and appear on transcripts, but none of the previously earned credits can be used in a new program. These credits will be included only in GPA computations for graduation with honors (see Graduation with Honors (p. 144)). A student admitted under Fresh Start may be allowed advanced standing or a waiver of requirements just as any other student, but will not be allowed credit by exam for courses lost in Fresh Start.

Readmission of Service Members
The Higher Education Opportunity Act of 2008 requires that students who left school to serve in the uniformed services be readmitted into the same program with the same standing they had when they left. UAF allows for special readmission of these students. More information is available at http://www.uaf.edu/veterans/.

Where to Get More Information
Office of Admissions
University of Alaska Fairbanks
2nd floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: uaf-admissions@alaska.edu
Online: http://www.uaf.edu/admissions/
Telephone: 907-474-7500
Toll free: 800-478-1823
Fax: 907-474-7097

Applying for Admission: Graduate Degree Programs

When to Apply
Applicants should apply to a graduate degree program at least six to nine months before the beginning of the semester in which they plan to enroll. Most departments require earlier submission of credentials for acceptance to their program. Contact the department for specific deadlines. The number of students accepted for graduate study is limited.

Graduate students are strongly encouraged to apply early. Applications received near deadline will be processed as time permits or may be considered for the following semester.

How to Apply
To be admitted to UAF, a student must:

1. Submit an application for admission
   Apply online at http://www.uaf.edu/admissions/. Applications must be received before the published deadlines, along with a $75 nonrefundable application fee. Applications submitted after the published deadlines and have a $100 nonrefundable application fee. Departmental deadlines may allow for applications past the published deadlines.
2. Submit official transcripts

The Office of Admissions requires official transcripts of all college-level course work. To be considered official, transcripts must arrive in sealed envelopes or by a secure electronic service from each institution attended.

Transcripts for International Applicants
See Applying for Admission: International Students (p. 32) page for additional information.

3. Submit official test results
   Not all departments require Graduate Record Exam scores if the student has earned a GPA of 3.0 or higher. The UAF school code for the GRE is 4866. Refer to the admission requirements of your prospective degree program to determine which tests are required.

4. Submit resume/curriculum vitae
   Include work and research experience, publications, patents, honors, professional and civic memberships, and foreign travel.

5. Submit statement of academic goals
   Write a statement indicating why study is desired in a particular program. Include qualifications and educational experience. For applicants to M.Ed. or education licensures/certificate programs, a four-to-five-page self-evaluation essay is required.

6. Submit three letters of recommendation
   Send at least three letters of recommendation from people able to vouch for the applicant’s academic work, character and ability to undertake graduate study and research.

ADDITIONAL APPLICATION INFORMATION

- Master of Fine Arts Applicants
  Master of fine arts applicants must submit writing samples when applying for admission to the creative writing program. An art portfolio (usually slides) must be submitted when applying to the program in art.

- Interdisciplinary Applicants
  Submit a Proposed Graduate Study Plan (available at http://www.uaf.edu/gradsch/classes/interdisciplinary-program/) and a comprehensive research proposal. Applicants must also obtain commitment from UAF faculty members to serve as an advisory committee. Contact the Graduate School for specific interdisciplinary procedures.

- International Students
  See Applying for Admission: International Students (p. 32) page for additional information.

- Students in Western Regional Graduate Programs
  Students from Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington and Wyoming may be eligible for resident tuition through the Western Regional Graduate Program/Western Interstate Commission for Higher Education. This program is for students pursuing a graduate degree in administration of justice, Arctic and Northern studies, or rural development. For more information about this program, contact the Graduate School at 907-474-7464, uaf-grad-school@alaska.edu, or online at http://www.uaf.edu/gradsch/. Students with questions may also contact the WICHE Student Exchange Program at P.O. Box 9752, Boulder, CO 80301-9752, 303-541-0210, or http://wiche.edu/wrgp/.

Admission Requirements
In general, applicants may be admitted to a graduate program if they have a bachelor’s degree from an accredited institution with at least a 3.0 (B) cumulative undergraduate GPA and a 3.0 (B) GPA in their major. The undergraduate major should provide suitable preparation for continuation
of studies in the field of choice. Some programs require the Graduate Record Exam or Graduate Management Admission Test and other special criteria for admission.

For the purposes of admission to graduate study, all grades, including those generated from retaking a course, are included in calculating GPA.

If an applicant meets the minimum requirements for the university, the Office of Admissions sends the complete application to the academic department. Program heads and/or committees in fields of interest will determine the adequacy of the student’s preparation and whether or not departmental facilities are sufficient for their aims.

Information on specific degree programs is available from academic departments or by contacting the Graduate School at 907-474-7464, uaf-grad-school@alaska.edu, or http://www.uaf.edu/gradsch/.

After Acceptance
Qualified applicants can be accepted for admission while enrolled in their last semester at another college. Acceptance is incomplete, pending receipt of the final transcript indicating satisfactory completion of work in progress and the completion of graduation requirements prior to enrollment at UAF.

Final acceptance to UAF is complete only when the Office of Admissions receives and accepts all credentials.

REQUEST TO POSTPONE
An offer of admission to UAF is valid for the semester for which the applicant applied. Requests to postpone admission until a later semester should be sent to uaf-admissions@alaska.edu. Admission may be postponed for up to one calendar year with the approval of the academic department and the dean of the graduate school. All graduate student requests to postpone are subject to approval by the department to which the student is applying.

Where to Get More Information
Office of Admissions
University of Alaska Fairbanks
2nd floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: uaf-admissions@alaska.edu
Online: http://www.uaf.edu/admissions/
Telephone: 907-474-7500
Toll free: 800-478-1823
Fax: 907-474-7097

Graduate School
University of Alaska Fairbanks
202 Eielson Building
PO Box 757650
Fairbanks, AK 99775-7560
Email: uaf-grad-school@alaska.edu
Online: http://www.uaf.edu/gradsch/
Telephone: 907-474-7464

Applying for Admission: International Students

When to Apply
International students may apply for admission to associate, bachelor and graduate-level degrees. Applications for admission from international students are due no later than March 1 for the fall semester and Sept. 1 for the spring semester. For graduate applicants, it is important to note that certain departments maintain earlier deadlines.

International students must complete all UAF application requirements to be admitted and meet requirements for U.S. immigration agencies to receive an I-20 certificate of eligibility F-1 status. I-20s Certification of Eligibility for F-1 Status cannot be issued for programs that are offered only through distance delivery. I-20s are not issued for the A.A.S. degree in professional piloting.

Admission Requirements
More information regarding the process for application to associate, bachelor or graduate programs can be found in the Getting Started (p. 27) section.

UNDERGRADUATE APPLICANTS
To be admitted to UAF, a student must:

1. Apply online at http://www.uaf.edu/admissions/. Applications must be received before the published deadlines, along with a $50 nonrefundable application fee. Applications submitted after the published deadlines have a $75 nonrefundable application fee and are processed in the order they are received.
2. Send official secondary school and/or university transcripts to World Education Services (WES) (http://www.wes.org) and request a comprehensive course-by-course credential report. Transcripts from Canadian institutions (excluding Quebec) are exempt from this requirement; they may be sent directly from the issuing institution.
3. Submit certified official secondary school and/or university transcripts and English translations. It is required that official transcripts of all high school and/or college-level course work be signed and sealed by a registration official of the institution(s) attended.
4. Submit test scores from the SAT or ACT exam.
5. Submit official TOEFL or IELTS test scores.
6. Submit a copy of the student’s passport identification page.
7. Complete UAF’s financial statement form and provide supporting documentation showing adequate funding to cover all expenses at UAF, including round-trip transportation to Alaska.

GRADUATE APPLICANTS
To be admitted to UAF, a student must:

1. Apply online at http://www.uaf.edu/admissions/. Applications must be received before the published deadlines, along with a $75 nonrefundable application fee. Applications submitted after the published deadlines are only accepted upon a department’s request and have a $100 nonrefundable application fee.
2. Review your department’s department-specific requirements and application deadlines.
3. Submit certified official university transcripts and English translations. To be considered official, transcripts must arrive in
sealed envelopes from each institution attended. If the transcript does not show that a bachelor’s degree has been or will be awarded, a diploma must also be sent.

4. Submit official GRE or GMAT test scores. Not all departments require GRE scores if the student has earned a GPA of 3.0 or higher. Refer to the admission requirements of your prospective degree program to determine which tests are required.

5. Submit a resume/curriculum vitae. Include work and research experience, publications, patents, honors, professional and civic memberships, and foreign travel.

6. Submit a statement of academic goals. Write a statement indicating why study is desired in a particular program. Include qualifications and educational experience. (For applicants to M.Ed. programs or education licensures/certificates, a four- to five-page self-evaluation essay is required.)

7. Submit three letters of recommendation. Send at least three letters of recommendation from people able to vouch for the applicant’s academic work, character and ability to undertake graduate study and research.

8. Submit official TOEFL or IELTS test results.

9. Submit a copy of the student’s passport identification page.

10. Complete UAF’s financial statement form and provide supporting documentation showing adequate funding to cover all expenses at UAF.¹

¹ Not an admission requirement, but required to determine visa eligibility.

Required Funding Amounts
The minimum estimated cost for one school year at UAF for an international student is $35,730 for undergraduate students and $35,545 for graduate students. (Students taking College of Engineering and Mines and School of Management courses: $36,950 undergraduate and $37,305 graduate.) This covers university fees, room and board on campus, and a reasonable amount of personal expenses. It does not include transportation to and from Alaska, summer living or winter clothing costs. Add approximately $4,500 for summer living expenses.

Residents of countries which hold approved sister city/sister province agreements qualify for resident tuition. A complete list of sister cities and provinces is listed below. Students on an F-1 visa who are not from a UA sister city or province are not eligible for resident tuition. For international students who are residents of a sister city, the estimated cost for one school year at UAF is $22,790 for an undergraduate and $25,840 for a graduate student.

UA SISTER CITIES AND PROVINCES

<table>
<thead>
<tr>
<th>Country</th>
<th>City or Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Darwin</td>
</tr>
<tr>
<td>Canada</td>
<td>Inuvik, Northwest Territory and Whitehorse, Yukon Territory</td>
</tr>
<tr>
<td>China</td>
<td>Harbin, Heilongjiang Province</td>
</tr>
<tr>
<td>Great Britain</td>
<td>Whitby, England</td>
</tr>
<tr>
<td>India</td>
<td>Pune</td>
</tr>
<tr>
<td>Japan</td>
<td>Chitose, Hokkaido Prefecture, Kanayama, Nemuro, Noshiro, Obihiro, Sarao, Teshio</td>
</tr>
<tr>
<td>Korea</td>
<td>Inchon</td>
</tr>
<tr>
<td>Mongolia</td>
<td>Erdenet City</td>
</tr>
<tr>
<td>Norway</td>
<td>Hammerfest, Mo, Tromsø</td>
</tr>
<tr>
<td>Philippines</td>
<td>CAMILING</td>
</tr>
<tr>
<td>Russia</td>
<td>Khabarovsk Region, Magadan, Mirnyy, Noglicki, Okha, Providenya, Vladivostok, Yakutsk, Yelisovo</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Chiayi Township</td>
</tr>
</tbody>
</table>

Immigration Requirements
Once a student has been accepted to UAF, the Office of International Programs and Initiatives will issue a Form I-20, which must be presented at a U.S. embassy or consulate in the country of citizenship in order to obtain an F-1 (student) visa. The I-20 form requires the university to certify to U.S. immigration agencies that a student has been accepted for full-time enrollment and has sufficient funds to meet estimated expenses for an academic program.

If a student is already in the United States on an F-1 visa, the SEVIS record may be transferred as long as the record is in SEVIS active status.

English Proficiency Requirements
Students on an F-1 visa are required to submit scores from the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System) exam. Some permanent residents (green card holders) are not required to submit TOEFL or IELTS scores (see exceptions below). English proficiency may be demonstrated by:

1. A minimum TOEFL score of 79.
2. A minimum IELTS score of 6.5.
3. Completion of secondary education in Great Britain, New Zealand, Australia or Canada (excluding Quebec).

Requests for exception to this policy may be submitted via email to the Office of Admissions. Acceptable grounds for waiving this requirement may include:

1. Successful completion (C or higher) of a college-level, non-ESL English composition course.
2. A comparable score on another approved exam such as the ACT, SAT or ACCUPLACER exam.
3. Long-term permanent residents of the U.S. who are able to provide adequate documentation (transcripts, test scores, etc.) demonstrating academic readiness for WRTG 111x.

Request to Postpone
If applicants are unable to attend, they must notify the Office of Admissions and the Office of International Programs and Initiatives. Students may request to postpone their admission for up to one calendar year. For graduate applicants, acceptance is not guaranteed for a future semester. An updated financial statement and current supporting financial documents will be required from all students.
Transferring Credits

Credit accepted at UAF that has been earned from other regionally accredited institutions, through military educational experiences, or credit accepted by special approval is considered transfer credit. Where possible, transfer credit is equated with UAF courses. See the Table of GER Substitutions (p. 35): UA System (p. 35) for a list of substitutions within the University of Alaska system and the Table of GER Substitutions: Non-UA Institutions (p. 35) for substitutions from non-UA institutions.

UAF’s transfer credit resource website (https://uaonline.alaska.edu/banprod/owa/bwsk2tcr.P_Tcs_Selmau) shows most courses previously evaluated by UAF and is an unofficial reference for undergraduate students who are considering transferring to UAF. An official evaluation of transfer credits will be provided after formal application and admission to a degree program at UAF.

The following regulations apply to transfer of credit:

1. Students are eligible for transfer of credit when they have been admitted to an undergraduate degree or certificate program.
2. The applicability of transfer credit to a student’s major and/or minor requirements is subject to approval by the major and/or minor department. Transfer students must fulfill the UAF graduation and residency requirements, including those specific to their programs.
3. Undergraduate credits earned at the 100 level or above with a C- grade or higher at institutions accredited by one of the six regional accrediting agencies will be considered for transfer. Transfer credit is not granted for courses with doctrinal religious content or for graduate courses (for undergraduate programs).
   **Note:** For information about transferring graduate credits to meet graduate program requirements, see Transfer Credit (p. 254) under How to Earn a Graduate Degree or contact the Graduate School at uaf-grad-school@alaska.edu or 907-474-7464.
4. Transfer credit is awarded for courses in which the student received grades of C- or better. Instructor permission may be required for purposes of registration if the transfer credit courses have not satisfied the prerequisite requirements.
5. Any student who has completed a bachelor’s degree from a regionally accredited institution will be considered to have completed the equivalent of the baccalaureate general education requirements, the Associate of Arts general education requirements and the Associate of Science general education requirements when officially accepted to a bachelor’s, Associate of Arts or Associate of Science program at UAF. These students will also be considered to have completed the communication, computation and human relations requirements for the Associate of Applied Science and the certificate.
6. Any student who has completed an Associate of Arts or an Associate of Science degree from a regionally accredited institution will be considered to have satisfied the 100- and 200-level UAF general education requirements.
7. Any transfer student from a regionally accredited institution who has completed an associate degree specifically developed for transfer to a four-year institution will be considered to have satisfied the UAF general education requirements.
8. Any transfer student who has completed the baccalaureate general education requirements at any regionally accredited four-year institution will be considered to have completed the baccalaureate general education requirements at UAF. The student is responsible for providing an official statement and documentation certifying general education requirements completion at the previous institution.
9. Transfer credit is not included in computation of the UAF GPA except to determine eligibility for graduation with honors.
10. Class standing (e.g., freshman, sophomore) is based on the number of college credits accepted in transfer by UAF, combined with any courses completed in residence at UAF.
11. Credits may be awarded for formal service schooling and military occupational specialties (MOS) based on recommendations published by the American Council on Education. ACE military credit recommendations can be found at http://www.acenet.edu/news-room/Pages/Military-Guide-Online.aspx. Credit completed through the Community College of the Air Force or Department of Defense courses is included in the category of military experience.
12. A student will be awarded credit for currently valid government and professional certifications that have been reviewed and approved for designated course equivalencies at UAF. A list of these programs is available in the Office of the Registrar.
13. Credit may also be awarded for satisfactory completion of training programs, based on recommendations of the American Council on Education. ACE college credit recommendations can be found at http://www2.acenet.edu/credit/?fuseaction=search.main. The award of credit is subject to review and approval of appropriate UAF faculty.
Table of GER Substitutions: Non-UA Institutions

This table describes courses accepted by transfer to UAF from institutions outside the University of Alaska system that may substitute for UAF’s general education requirements. Students transferring from either UAA or UAS should consult Table of GER Substitutions: UA System (p. 35), or visit https://www.uaf.edu/admissions/apply/transfer.

<table>
<thead>
<tr>
<th>UAF General Education Courses</th>
<th>Transfer Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRTG F111X</td>
<td>the required first-semester composition course at the 100 level (must be basic freshman composition and not developmental)</td>
</tr>
<tr>
<td>WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X</td>
<td>the second half of the introductory composition series at the 100 level or above</td>
</tr>
<tr>
<td>COJO F121X, COJO F131X or COJO F141X</td>
<td>a 100-level or above performance course in fundamentals of speech communication, public speaking or small group communication</td>
</tr>
</tbody>
</table>

Arts (3 credits) | an introductory course in the arts which does not stress skills acquisition

Humanities (3-5 credits) | an introductory course in the humanities

Social Sciences (6 credits) | introductory courses in different social sciences disciplines

Additional Arts/Humanities/Social Sciences (3-5 credits) | see Arts, Humanities, Social Sciences above

MATH F113X, MATH F114X, MATH F122X, MATH F151X, MATH F152X or MATH F156X or; | a 100-level or above mathematics course having a prerequisite of at least two years of high school algebra

MATH F230X, MATH F251X, MATH F252X, MATH F253X or STAT F200X | a calculus or statistics course at the 100 level or above

Natural Sciences (8 credits) | courses in basic natural sciences (biology, chemistry, earth sciences, physics) with labs, at the 100 level or above. Non-lab courses are transferable only as a second natural science course. To fulfill general education requirements, a transfer student must complete two lab courses or two labs. Transfer of credit for courses in a natural science other than those listed requires approval of the dean of the College of Natural Science and Mathematics.

Transferring Credits within the UA System

In general, undergraduate credits earned at the 100 level or above at a University of Alaska institution will transfer to UAF. In addition, in order to serve students who transfer among the three institutions that make up the University of Alaska system, UAF, UAA and UAS have identified fully transferable general education requirements for baccalaureate degrees.

Credit for course work successfully completed at one UA institution which applies to general education requirements will fulfill the same categories at all other UA institutions. This applies even if there is no directly matching course work at the institution to which the student transfers.

Transfer students from UAA or UAS who have completed all general education requirements in the baccalaureate program before transferring to UAF will have completed all requirements for the UAF baccalaureate general education requirements. Courses taken to complete the baccalaureate general education requirements at UAA or UAS will meet UAF baccalaureate general education requirements according to the current Table of GER Substitutions: UA System (p. 35). Students should notify the UAF Office of the Registrar if they completed the general education requirements at UAA or UAS prior to enrollment in a major program of study at UAF.

In accordance with UA Board of Regents policy, completion of the 38-44 credits of the UAF general education requirements meets the general education requirements at UAA and UAS.

For more information about transfer credit visit https://www.uaf.edu/admissions/apply/transfer.

Table of GER Substitutions: UA System

Use this course substitution table to determine how individual courses that meet UAA or UAS general education requirements may substitute for individual UAF general education requirements. This table applies only to courses taken within the University of Alaska system. Students transferring courses from outside the UA system should consult Table of Substitutions: Non-UA Institutions (p. 35) or visit https://www.uaf.edu/admissions/apply/transfer.

To meet these UAF General Education course requirements | Use any of these UAA general education courses | Use any of these UAS general education courses
--- | --- | ---
WRITTEN COMMUNICATION (3 cr) | WRTG A111 | WRTG S111
WRITTEN COMMUNICATION (3 cr) | WRTG A211, WRTG A212, WRTG A213, WRTG A214 | WRTG S211, WRTG S212
### Transferring Credits

**ORAL COMMUNICATION (3 cr)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F121X, COJO F131X or COJO F141X</td>
<td>COMM A111, COMM A235, COMM A237, COMM A241</td>
</tr>
<tr>
<td></td>
<td>COMM S111, COMM S235, COMM S237, COMM S241</td>
</tr>
</tbody>
</table>

**ARTS (3 cr)**

Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ART S160, ART S261, ART S262; MUS S123; THR S111, THR S211, THR S212</td>
</tr>
</tbody>
</table>

**HUMANITIES (3-5 cr)**

Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
</table>

**SOCIAL SCIENCES (6 cr)**

Complete two courses in two different disciplines from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ANTH S101, ANTH S202, ANTH S211; ECON S100, ECON S201, ECON S202; GEOG S101; HIST S105, HIST S106, HIST S131, HIST S132; PS S101, PS S102, PS S202, PS S251; PSY S101, PSY S250; SOC S101, SOC S201</td>
</tr>
</tbody>
</table>

**Additional ARTS/HUMANITIES/SOCIAL SCIENCES (3-5 cr)**

Complete one additional course from the Arts, Humanities or Social Sciences courses listed above.

**MATHEMATICS (3-4 cr)**

Complete one of the following:
MATH F113X, MATH F114X, MATH F122X, MATH F151X, MATH F152X, MATH F156X, MATH F230X, MATH F251X, MATH F252X, MATH F253X; STAT F200X

NATURAL SCIENCES (8 cr)
Complete two of the following:
ATM F101X; BIOL F100X, BIOL F103X, BIOL F104X, BIOL F111X, BIOL F112X, BIOL F115X, BIOL F116X, BIOL F120X; CHEM F100X, CHEM F103X, CHEM F104X, CHEM F105X, CHEM F106X, CHEM F111X; GEOG F111X; GEOS F101X, GEOS F106X, GEOS F112X, GEOS F120X; MSL F111X; PHYS F102X, PHYS F103X, PHYS F104X, PHYS F15X, PHYS F175X, PHYS F211X, PHYS F212X, PHYS F213X

1 Or any math course having one of these as a prerequisite.

Alternate Ways to Earn Credit

TESTING SERVICES
As a national test center, UAF Testing Services administers paper-and-pencil and computer-based exams. The office advises UAF students, prospective students and the community on national testing matters for college admissions and placement and for career and professional certification. Testing Services also coordinates credit by examination for local tests and for the College-Level Examination Program (CLEP). The office also does private proctoring. For more information and registration materials, contact Testing Services, 211 Gruening Building, 907-474-5277, uaf-testing-dept@alaska.edu or http://www.uaf.edu/testing/.

CREDIT FOR NATIONAL EXAMS
There are several ways to earn college credit by receiving a passing score on a national exam. For any of the following exam options, grades are not computed in the UAF GPA. Credit received for exams is not considered UAF residence credit and is not considered to be part of the semester course load for classification as a full-time student. Credit is awarded to current or previously enrolled degree students at UAF. Rules that apply to transfer courses (including the tables of substitutions) also apply to course credit received through a national exam. The credit for national exam options are briefly outlined here.

• College-level Examination Program
CLEP is a national testing program that awards college credit for some introductory courses. The exams cost $120 each (cost subject to change) and are administered by appointment only.

See a list of College-Level Examination Program (CLEP) general and subject exams approved for credit at UAF on the following page. To register for a CLEP exam or for more information, contact UAF Testing Services at 907-474-5277 or uaf-testing-dept@alaska.edu. The following criteria apply to CLEP exams:

1. Students can earn up to 6 semester credits upon successful completion of a General CLEP exam in the discipline of college mathematics, humanities, natural sciences or social sciences/history. Students who have earned less than 6 credits in the discipline (or 3 credits for mathematics), from any source, will be awarded the difference in credits upon successful completion of the exam. Students who already have 6 or more credits in the discipline (or 3 credits for mathematics) will not receive credit for the exam. General CLEP exams are listed in bold font in the College-Level Examination Program (CLEP) Exams Currently Accepted (p. 38) table.
2. Students may not duplicate a course for which credit has already been earned or in which the student is currently enrolled.
3. Students must wait at least one year after the end of an audited course before taking the CLEP Subject exam for that course.
4. The minimum passing score for approved CLEP exams is 50, with the exception of the following foreign languages scores: French semester I and II minimum 50, semesters III and IV minimum 59; German semester I minimum 39, semester II minimum 50, semester III minimum 55, semester IV minimum 60; Spanish semester I minimum 39, semester II minimum 50, semester III minimum 57, semester IV minimum 63.

• College Board Advanced Placement Exams
UAF grants advanced credit for exam results of 3 or higher, or a score of 4 or 5 (effective fall 2016) for Calculus AB or BC, on the College Board (CEEB) Advanced Placement Tests (see the College Board Advanced Placement (AP) Exams Currently Accepted (p. 40) table). These exams are usually taken during the junior or senior year in high school.

To receive CEEB advanced placement credit, ask that an official report of the exam results be sent to the Office of Admissions from the College Board.

Credits may be earned for more than one advanced placement exam.

• Credit for Language Testing

UAF accepts successful test results from Brigham Young University or other national testing programs (subject to approval from the Department of Foreign Languages and Literatures) in languages for which no CLEP test is available, for a maximum of 12 credits. The first 10 credits may be applied to the general education Humanities and/or Additional Arts/Humanities, Social Sciences requirement, and any additional credits will be awarded general humanities elective credit. Results must be submitted directly to the Office of the Registrar by the testing agency. For more information on foreign language testing opportunities, contact UAF Testing Services at 907-474-5277 or uaf-testing-dept@alaska.edu.

Students who are speakers of non-English languages transferring from foreign partner universities to UAF are exempted from taking a foreign language test to demonstrate fluency in that language. Complete the language exemption/GER credit waiver form and file it with the Office of the Registrar. Upon approval, 3 credits of general education humanities and/or 3 credits of additional arts/humanities/social sciences general education requirements will be waived. This applies only to students participating in formalized articulation agreements established between UAF and partner institutions.

• DANTES-DSST (Standardized Subject Tests)

DSST is a national testing program that offers exams in traditional academic, vocational/technical and business subject areas. Credit is awarded for successfully completing DSST tests as recommended by the American Council on Education. Acceptance of the DSST exam for a specific catalog course or as a major/minor requirement is subject to department approval. DSST exams cost $120 each (cost subject to change). Contact UAF Testing Services at 907-474-5277 or uaf-testing-dept@alaska.edu about the availability of DSST testing.

• International Baccalaureate

The International Baccalaureate Diploma Program is a two-year curriculum for students ages 16 to 19 and is similar to the final year of secondary school in some countries in Europe. UAF grants advanced credit, with a waiver of fees, for IB higher-level and some standard-level exams on which students have earned a score of 4 or higher, or a score of 5 or higher for mathematics (see the International Baccalaureate Exams Currently Accepted (p. 41) table). To receive IB credit, students should submit an official copy of their IB exam results to the Office of the Registrar.

### College-Level Examination Program (CLEP) Exams Currently Accepted

<table>
<thead>
<tr>
<th>Examination Name</th>
<th>UAF Course Equivalent</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra (College)</td>
<td>MATH F122X or MATH F151X</td>
<td>3 or 4</td>
</tr>
<tr>
<td>American Government</td>
<td>PS F101X</td>
<td>3</td>
</tr>
<tr>
<td>American Literature</td>
<td>NOT APPROVED FOR CREDIT</td>
<td></td>
</tr>
<tr>
<td>Analyzing and Interpreting Literature</td>
<td>NOT APPROVED FOR CREDIT</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>NOT APPROVED FOR CREDIT</td>
<td></td>
</tr>
<tr>
<td>Calculus</td>
<td>MATH F251X</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry</td>
<td>CHEM F105X/CHEM F106X</td>
<td>8</td>
</tr>
<tr>
<td>College Composition</td>
<td>WRTG F111X</td>
<td>3</td>
</tr>
<tr>
<td>College Composition Modular</td>
<td>NOT APPROVED FOR CREDIT</td>
<td></td>
</tr>
<tr>
<td><strong>College Mathematics</strong></td>
<td><strong>Mathematics elective credits</strong></td>
<td>3</td>
</tr>
<tr>
<td>Educational Psychology (Introduction)</td>
<td>NOT APPROVED FOR CREDIT</td>
<td></td>
</tr>
<tr>
<td>English Literature</td>
<td>NOT APPROVED FOR CREDIT</td>
<td></td>
</tr>
<tr>
<td>Financial Accounting</td>
<td>ACCT F261X</td>
<td>3</td>
</tr>
<tr>
<td>French Language</td>
<td>FREN F101X/FREN F102X</td>
<td>5/5</td>
</tr>
<tr>
<td></td>
<td>FREN F201/FREN F202</td>
<td>3/3</td>
</tr>
<tr>
<td>German Language</td>
<td>GER F101X/ GER F102X</td>
<td>5/5</td>
</tr>
<tr>
<td></td>
<td>GER F201/GER F202</td>
<td>3/3</td>
</tr>
<tr>
<td>History of the United States I</td>
<td>HIST F131</td>
<td>3</td>
</tr>
<tr>
<td>History of the United States II</td>
<td>HIST F132X</td>
<td>3</td>
</tr>
<tr>
<td>Human Growth and Development</td>
<td>PSY F240</td>
<td>3</td>
</tr>
<tr>
<td><strong>Humanities</strong></td>
<td><strong>Humanities elective credits</strong></td>
<td>6</td>
</tr>
<tr>
<td>Information Systems</td>
<td>PENDING DEPT APPROVAL</td>
<td></td>
</tr>
<tr>
<td>Introductory Business Law</td>
<td>ABUS F241</td>
<td>3</td>
</tr>
</tbody>
</table>
### Natural Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precalculus MATH F151X/MATH F152X</td>
<td>4/3</td>
</tr>
<tr>
<td>Principles of Marketing ABUS F260</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Macroeconomics ECON F202X</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Microeconomics ECON F201X</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Management ABUS F232</td>
<td>3</td>
</tr>
<tr>
<td>Psychology (Introductory) PSY F101X</td>
<td>3</td>
</tr>
</tbody>
</table>

### Social Sciences/History

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociology (Introductory) SOC F101X</td>
<td>3</td>
</tr>
<tr>
<td>Spanish Language SPAN F101X/SPAN F102X</td>
<td>5/5</td>
</tr>
<tr>
<td>SPAN F201/SPAN F202</td>
<td>3/3</td>
</tr>
<tr>
<td>Western Civilization I: Ancient Near East to 1648 HIST F101</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization II: 1648 to Present HIST F102X</td>
<td>3</td>
</tr>
</tbody>
</table>

1. General CLEP Exam. Students who have earned less than 6 credits in the discipline (or 3 credits for mathematics), from any source, will be awarded the difference in credits upon successful completion of the exam. Students who already have 6 or more credits in the discipline (or 3 credits for mathematics) will not receive credit for the exam.

2. Can be used to meet the Social Sciences general education requirement.

3. Can be used to meet the Humanities general education requirement.

X = Course meets general education requirement.

The Table of GER Substitutions: Non-UA Institutions (p. 35) guidelines determine which courses may meet general education requirements.

Must have a minimum score of 50 in order to receive UAF credit, with the exception of foreign language exams (p. 38), where score determines the number of credits awarded.
## College Board Advanced Placement (AP) Exams Currently Accepted

<table>
<thead>
<tr>
<th>Examination Name</th>
<th>UAF Course Equivalent</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art: History</td>
<td>ART F261X/ART F262X</td>
<td>6</td>
</tr>
<tr>
<td>Art, Studio: 2-D</td>
<td>Art electives&lt;sup&gt;1,3&lt;/sup&gt;</td>
<td>6</td>
</tr>
<tr>
<td>Art, Studio: 3-D</td>
<td>Art electives&lt;sup&gt;1,3&lt;/sup&gt;</td>
<td>6</td>
</tr>
<tr>
<td>Art, Studio: Drawing</td>
<td>Art Electives&lt;sup&gt;1,3&lt;/sup&gt;</td>
<td>6</td>
</tr>
<tr>
<td>Biology</td>
<td>BIOL F115X/BIOL F116X</td>
<td>8</td>
</tr>
<tr>
<td>Calculus AB</td>
<td>MATH F251X</td>
<td>4</td>
</tr>
<tr>
<td>Calculus BC</td>
<td>MATH F251X/MATH F252X</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry</td>
<td>CHEM F105X/CHEM F106X</td>
<td>8</td>
</tr>
<tr>
<td>Chinese Language and Culture</td>
<td>CHNS F101X/CHNS F102X</td>
<td>10</td>
</tr>
<tr>
<td>Computer Science A</td>
<td>CS F201</td>
<td>3</td>
</tr>
<tr>
<td>English Language &amp; Composition</td>
<td>WRTG F111X</td>
<td>3</td>
</tr>
<tr>
<td>English Literature &amp; Composition</td>
<td>WRTG F111X</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>Natural sciences elective (meets general education requirement)</td>
<td>4</td>
</tr>
<tr>
<td>European History</td>
<td>HIST F101&lt;sup&gt;2&lt;/sup&gt;/HIST F102X</td>
<td>6</td>
</tr>
<tr>
<td>French Language and Culture</td>
<td>FREN F101X/FREN F102X</td>
<td>10</td>
</tr>
<tr>
<td>German Language and Culture</td>
<td>GER F101X/GER F102X</td>
<td>10</td>
</tr>
<tr>
<td>Government and Politics: Comparative</td>
<td>PS F201X</td>
<td>3</td>
</tr>
<tr>
<td>Government and Politics: United States</td>
<td>PS F101X</td>
<td>3</td>
</tr>
<tr>
<td>Human Geography</td>
<td>GEOG F101X</td>
<td>3</td>
</tr>
<tr>
<td>Italian Language and Culture</td>
<td>Foreign Language electives&lt;sup&gt;3&lt;/sup&gt;</td>
<td>8</td>
</tr>
<tr>
<td>Japanese Language and Culture</td>
<td>JPN F101X/JPN F102X</td>
<td>10</td>
</tr>
<tr>
<td>Latin</td>
<td>Foreign Language electives&lt;sup&gt;3&lt;/sup&gt;</td>
<td>8</td>
</tr>
<tr>
<td>Macroeconomics</td>
<td>ECON F202X</td>
<td>3</td>
</tr>
<tr>
<td>Microeconomics</td>
<td>ECON F201X</td>
<td>3</td>
</tr>
<tr>
<td>Music Theory (score of 3)</td>
<td>MUS F103X</td>
<td>3</td>
</tr>
<tr>
<td>Music Theory (score of 4 or 5)</td>
<td>MUS F131&lt;sup&gt;3&lt;/sup&gt;/MUS F133&lt;sup&gt;3&lt;/sup&gt;</td>
<td>5</td>
</tr>
<tr>
<td>Physics 1</td>
<td>PHYS F103X</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2</td>
<td>PHYS F104X</td>
<td>4</td>
</tr>
<tr>
<td>Physics C: Electricity and Magnetism</td>
<td>PHYS F212X</td>
<td>4</td>
</tr>
<tr>
<td>Physics C: Mechanics</td>
<td>PHYS F211X</td>
<td>4</td>
</tr>
<tr>
<td>Psychology</td>
<td>PSY F101X</td>
<td>3</td>
</tr>
<tr>
<td>Russian Language and Culture (Prototype)</td>
<td>RUSS F101X/RUSS F102X</td>
<td>10</td>
</tr>
<tr>
<td>Spanish Language and Culture</td>
<td>SPAN F101X/SPAN F102X</td>
<td>10</td>
</tr>
<tr>
<td>Spanish Literature and Culture</td>
<td>Spanish electives (200 level)&lt;sup&gt;3&lt;/sup&gt;</td>
<td>2</td>
</tr>
<tr>
<td>Statistics</td>
<td>STAT F200X</td>
<td>3</td>
</tr>
<tr>
<td>United States History</td>
<td>HIST F131&lt;sup&gt;2&lt;/sup&gt;/HIST F132X</td>
<td>6</td>
</tr>
<tr>
<td>World History</td>
<td>HIST F100X</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Portfolios may be submitted to the Art Department for further evaluation.
2. Can be used to meet the Social Sciences general education requirement.
3. Can be used to meet the Humanities general education requirement.

X = Course meets general education requirement.

The Table of GER Substitutions: Non-UA Institutions (p. 35) guidelines determine which courses may meet general education requirements.

Must have a minimum score of 3, or a score of 4 or 5 for Calculus AB or BC, in order to receive UAF credit.
# International Baccalaureate Exams Currently Accepted

<table>
<thead>
<tr>
<th>Examination Name</th>
<th>Level</th>
<th>UAF Course Equivalent</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>HL</td>
<td>BIOL F115X/BIOL F116X</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry</td>
<td>SL</td>
<td>CHEM F103X/CHEM F104X</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry</td>
<td>HL</td>
<td>CHEM F105X/CHEM F106X</td>
<td>8</td>
</tr>
<tr>
<td>Classical Greek</td>
<td>HL</td>
<td>Humanities electives¹</td>
<td>6</td>
</tr>
<tr>
<td>French</td>
<td>SL</td>
<td>FREN F101X/FREN F102X</td>
<td>10</td>
</tr>
<tr>
<td>French</td>
<td>HL</td>
<td>FREN F101X/FREN F102X</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FREN F201¹/FREN F202¹</td>
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<tr>
<td>German</td>
<td>SL</td>
<td>GER F101X/GER F102X</td>
<td>10</td>
</tr>
<tr>
<td>German</td>
<td>HL</td>
<td>GER F101X/GER F102X</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GER F201¹/GER F202¹</td>
<td>6</td>
</tr>
<tr>
<td>History of Europe &amp; the Islamic World</td>
<td>HL</td>
<td>HIST electives²</td>
<td>6</td>
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<tr>
<td>Japanese</td>
<td>SL</td>
<td>JPN F101X/JPN F102X</td>
<td>8</td>
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<tr>
<td>Japanese</td>
<td>HL</td>
<td>JPN F101X/JPN F102X</td>
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<td></td>
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<td>JPN F201¹/JPN F202¹</td>
<td>10</td>
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<tr>
<td>Language A1 (English)</td>
<td>HL</td>
<td>WRTG F111X and</td>
<td>3</td>
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<td></td>
<td></td>
<td>ENGL electives</td>
<td>3</td>
</tr>
<tr>
<td>Latin</td>
<td>HL</td>
<td>LAT F101X/LAT F102X</td>
<td>6</td>
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<tr>
<td>Mathematics</td>
<td>HL</td>
<td>MATH F251X</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics w/Series &amp; ODE option</td>
<td>HL</td>
<td>MATH F251X</td>
<td>4</td>
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<td></td>
<td></td>
<td>MATH F252X</td>
<td>4</td>
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<tr>
<td>Mathematics and Further Math</td>
<td>HL</td>
<td>MATH F251X, MATH F252X</td>
<td>8</td>
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<tr>
<td></td>
<td>SL</td>
<td>MATH electives</td>
<td>3</td>
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<tr>
<td>Philosophy</td>
<td>HL</td>
<td>PHIL F102X</td>
<td>3</td>
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<tr>
<td>Physics</td>
<td>SL</td>
<td>PHYS F103X</td>
<td>4</td>
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<tr>
<td>Physics</td>
<td>HL</td>
<td>PHYS F103X/PHYS F104X</td>
<td>8</td>
</tr>
<tr>
<td>Russian</td>
<td>SL</td>
<td>RUSS F101X/RUSS F102X</td>
<td>10</td>
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<tr>
<td>Russian</td>
<td>HL</td>
<td>RUSS F101X/RUSS F102X</td>
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<tr>
<td></td>
<td></td>
<td>RUSS F201¹/RUSS F202¹</td>
<td>8</td>
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<tr>
<td>Social &amp; Cultural Anthropology</td>
<td>SL</td>
<td>ANTH electives</td>
<td>6</td>
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<td></td>
<td>HL</td>
<td>ANTH F242²</td>
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<td>Spanish</td>
<td>SL</td>
<td>SPAN F101X/SPAN F102X</td>
<td>10</td>
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<tr>
<td>Spanish</td>
<td>HL</td>
<td>SPAN F101X/SPAN F102X</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPAN F201¹/SPAN F202¹</td>
<td>6</td>
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<tr>
<td>Theatre</td>
<td>SL</td>
<td>FLPA F200X</td>
<td>3</td>
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<tr>
<td>Theatre</td>
<td>HL</td>
<td>FLPA F200X</td>
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<td>FLPA electives</td>
<td>1</td>
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<tr>
<td>20th-C World History: History of Africa</td>
<td>HL</td>
<td>HIST F100X substitute</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>HIST electives</td>
<td>3</td>
</tr>
<tr>
<td>20th-C World History: History of the Americas</td>
<td>HL</td>
<td>HIST F100X substitute</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HIST electives</td>
<td>3</td>
</tr>
<tr>
<td>20th-C World History: History of Asia &amp; Oceania</td>
<td>HL</td>
<td>HIST F100X substitute</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HIST electives</td>
<td>3</td>
</tr>
<tr>
<td>20th-C World History: History of Europe &amp; the Middle East</td>
<td>HL</td>
<td>HIST electives²</td>
<td>6</td>
</tr>
<tr>
<td>Visual Arts</td>
<td>HL</td>
<td>ART F105¹/ART F161¹</td>
<td>6</td>
</tr>
</tbody>
</table>

1 Can be used to meet the Humanities general education requirement.
2 Can be used to meet the Social Sciences general education requirements.

X = Course meets general education requirement.
The Table of GER Substitutions: Non-UA Institutions (p. 35) guidelines determine which courses may meet general education requirements.

If an international baccalaureate exam is not in this table, contact the Office of the Registrar at uaf-registrar@alaska.edu for more information.

Must have a minimum score of 4 (or a score of 5 in mathematics) to receive UAF credit.

**UAF CREDIT BY EXAM**

Credit by exam can be earned at UAF by students who are currently enrolled. Most courses are available for credit by exam, except those with numbers ending -90 through -99 (193, 292, 497, etc.). A course challenged for credit cannot duplicate a course for which credit has already been granted or in which the student is currently enrolled. It is up to the discretion of the department and instructor to decide which courses can be challenged, the testing method and grading procedures. Credit by exam may not be requested for audited courses until one year has passed since the end of the semester in which the course was audited.

Credit by examination forms may be obtained online at http://www.uaf.edu/testing/, under UAF-Specific Tests, or at the Office of Testing Services in 211 Gruening. For more information on challenging a course call Testing Services at 907-474-5277.

**UAF ADVANCED PLACEMENT CREDIT**

- **English**
  Students with ACT or SAT scores that place them in WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X (see English, Developmental English and Developmental Studies Course Placement Scores (p. 43) table) may receive local advanced placement credit for WRTG F111X upon completion of WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X with a grade of C or better.
  Students who have received transfer credit that substitutes for WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X with a grade of C or better and who meet the ACT or SAT test score requirement may also receive credit for WRTG F111X.
  To receive this credit, students must submit the Application for WRTG F111X Credit form to the Office of the Registrar. The form is available at the Office of the Registrar or the English Department.

- **Alaska Native Language**
  After completing a course in which the student was placed (above 101) and earning a B grade or higher, the student may ask to receive credit for the two immediately preceding prerequisite courses, if any. However, credit cannot be awarded for such courses if university credit has already been granted. Credit will not be awarded for special topics courses, individual study courses, literature or culture courses, conversation courses, or any course taught in English.

**CREDIT FOR PRIOR LEARNING**

The Academic Advising Center administers the credit for prior learning program, wherein students may earn undergraduate credit based on university-level learning they have obtained outside the classroom. Students can document the university-level learning they have gained through employment, volunteer service or other life experiences with a portfolio or copies of licenses and certificates earned. Certificate, associate or bachelor’s degree students may earn up to 25 percent of total program requirements through the credit for prior learning program.

Credentials for admitted degree students who are currently enrolled are reviewed by faculty from participating departments who determine if this process is appropriate and make recommendations for awarding prior learning credit. Review is based on equivalency to courses listed in this catalog. Credit received for prior learning does not affect your GPA and is not considered residence credit. The university will award transfer credit for specified national and state authorizations, certificates, credentials and/or examinations (see Transferring Credits (p. 34)) that do not need credit for prior learning review. For further information or assistance, contact the Academic Advising Center, 510 Gruening Building, 907-474-6396 or uaf.advising@alaska.edu. The credit for prior learning student handbook is available at http://www.uaf.edu/advising/cpl/CPL-Handbook-.pdf.

**COMPETENCY TESTING**

Students with appropriate background experience may complete certain components of the UAF general education requirements via competency testing. Credit by exam is not available.

- **Library Competency Exam**
  The Library Competency Exam, administered by UAF Testing Services, is offered to fulfill the bachelors’ degree requirement for LS F101X. The LCE, offered daily in Testing Services for $30, is designed to test or verify a student’s knowledge of standard library functions, services and organization. While no credit is awarded for passing this exam, a score of at least 70 percent will fulfill the bachelors’ degree requirements for LS F101X. Please contact Testing Services at 907-474-5277, uaf-testing-dept@alaska.edu or 211 Gruening Building for more information.

- **Computer Skills Placement Exam**
  The Computer Skills Placement Exam, administered by UAF Testing Services, is offered to fulfill the degree requirement for AIS F101, required by students seeking a B.B.A. degree at UAF. The CSP, offered daily in Testing Services for $30, is designed to test or verify a student’s knowledge of information technology and file management procedures; word processing (Word), spreadsheets (Excel), databases (Access) and presentation (PowerPoint) software; and information and communication skills. While no credit is awarded for passing this exam, a score of at least 70 percent will fulfill the degree requirement for AIS F101. Please contact Testing Services at 907-474-5277, uaf-testing-dept@alaska.edu or 211 Gruening Building for more information.

- **Oral Communication Competency Exam**
Requests for competency testing for COJO F141X will be considered only if, in the opinion of a member of the Communication and Journalism Department faculty, a student presents evidence of substantive prior experience in formal public speaking situations (competency testing is not available for COJO F131X). Neither prior oral intensive course work nor COJO F432 are considered evidence of substantive prior experience. If the prior experience is sufficient, the individual will be asked either: a) to provide a video (not audio) recording of a formal public speaking presentation at least 10 minutes in length, or b) to present a 10-minute persuasive speech before a live audience, with at least one member of the Communication and Journalism Department faculty present. This process may be attempted only once. The date for live speeches will be established each semester, at a single time during the fourth to sixth week of classes. While no credit is awarded for passing this exam, a grade of at least a B (3.0) for either type of presentation will fulfill the general education requirements for COJO F141X. For more information and an application for competency testing, contact Testing Services at 907-474-5277, 211 Gruening Building, or the Department of Communication and Journalism at 907-474-7761 or 101 Bunnell Building.

Registration

You must register and pay tuition and fees to attend classes and earn credit. Registration is held each semester on dates published in the academic calendar (http://catalog.uaf.edu/calendar). For special programs, short courses, seminars and other classes not part of the regular academic calendar, registration is as needed.

Details about procedures and schedules for registering are published online and in separate publications at each campus. Registration instructions for the Fairbanks campus are provided in the UAF registration guide (http://www.uaf.edu/register).

The first day of instruction for all semester-length courses is the date indicated in the official semester academic calendar. That date might not be the first day that a class meets.

If you register for courses, the university holds you financially responsible for payment of your tuition and fees. The university may drop your registration if you do not pay. Other consequences for nonpayment include not being able to receive your grades or transcripts.

Academic Advising Is Required

Academic advising is an important part of planning for your education. Degree students must obtain an academic advisor’s signature every semester to begin the registration process. All undergraduate degree and certificate students are required to have an academic advisor. You will work in tandem with your academic advisor to develop a viable educational plan that reflects your academic interests and goals. Your academic advisor will assist you in determining the best options, alternatives and sequences of classes to take. Academic advising is available at several campuses. See Services and Resources (p. 74) for more information.

Graduate Students

First-semester graduate students must meet with their advisor, or, if no advisor is assigned, then they should meet with the department or program chair to begin their registration process.

Continuing graduate students who meet the registration requirement as found under the How to Earn a Graduate Degree (http://catalog.uaf.edu/graduate) section of the catalog need to confer with their advisor as to what courses to enroll in for each semester.

Nondegree Students

Anyone who wants to attend classes at UAF as a nondegree student may register as long as they have the appropriate permissions. New nondegree students who are at least 18 years old must complete a free UAOnline nondegree application (https://uaoonline.alaska.edu/banprod/owa/twbkwbis.P_GenMenu?name=bmenu.P_TakeAClass) in order to be eligible to register.

Nondegree students may also see an academic advisor, and it is recommended for those taking 9 or more credits in a semester or for those who have accumulated 30 or more UAF credits. Nondegree students who have been academically disqualified should meet with an academic advisor each semester to develop a realistic and timely educational plan.

Nondegree students are subject to placement examination requirements for courses, and they must maintain a 2.0 GPA to remain in good standing. Any nondegree student who wants to be considered a degree candidate must submit an application for admission, meet regular admission requirements and submit transcripts. Nondegree students are not eligible for financial aid or priority registration.

It’s important for potential graduate students to understand that credits earned as a nondegree student might not be accepted for use toward a graduate degree program. Please see the transfer credit section of How to Earn a Graduate Degree (p. 254).

High School and Secondary School Students

High school and secondary students may take classes at UAF either as degree or nondegree students.

• Secondary Student Enrollment
The secondary student enrollment process allows secondary school students to register for UAF classes. A student meeting course prerequisites may enroll in university classes. Students must consult their appropriate school district officials and school counselors for approval prior to registration if they wish to use university courses to meet high school graduation requirements. Registering for courses at UAF establishes a permanent academic record that reflects student academic performance in all courses attempted. Students must submit the free (nondegree) secondary student application (https://uaonline.alaska.edu/banprod/owa/twbkwbis.P_GenMenu?name=bmenu.P_TakeAClass), and must obtain a parent or guardian’s permission (http://uaf.edu/reg/forms/REC_Secondary-Student-Parent-Guardian-Agreement-2017.pdf) to enroll.

**Note:** Enrollment in UAF courses as a secondary student does not constitute formal admission to the university for the purposes of earning a certificate or degree. Please note that in order to qualify for federal financial aid, you must have either a high school diploma or a GED.

- **TECH PREP Opportunities**
  The TECH PREP program allows students to earn credits toward a UAF certificate or associate degree by completing career and technical education classes in high school that have been approved for college credit by UAF. The classes available for credit vary from school to school, but in general they are taken from the following areas: applied business; automotive; airframe and powerplant; human services; computer information office systems; allied health; drafting; emergency medical services; and welding. For more information, contact your high school counselor or the Community and Technical College at 907-455-2800.

- **Alaska Higher Education Admission Decision (AHEAD) program**
  The AHEAD program allows qualified high school students to be admitted to UAF as general studies students. AHEAD students are assigned an academic advisor and follow the registration timeline for degree students.

  To qualify, students must submit an AHEAD program application (https://uaf.edu/admissions/apply/highschool). They must have completed three-fourths of their high school core curriculum and have a cumulative 3.0 GPA or higher. (To qualify for federal financial aid, you must have either a high school diploma or a GED.)

### Adding, Dropping and Withdrawing from Classes
Information about the add/drop process can also be found at [http://uaonline.alaska.edu](http://uaonline.alaska.edu) and in the registration guide (http://www.uaf.edu/register). Adds, drops and withdrawals are not final until the student has completed the appropriate procedure, paid any relevant fees or tuition and submitted all necessary paperwork to the Office of the Registrar. If you drop a class within specified time frames, the course will not be part of your academic transcript. Important deadlines are listed in Important Registration Change Deadlines (p. 44) table.

### Important Registration Change Deadlines

<table>
<thead>
<tr>
<th>Action</th>
<th>Begins</th>
<th>Ends</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding a class</td>
<td>First day of registration for the semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td>Advisor’s signature not required.</td>
</tr>
<tr>
<td>Credit/No-credit option</td>
<td>First day of registration for the semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td>Undergraduates only; only electives not specified in a student’s core, major, minor and degree programs are eligible for this option.</td>
</tr>
<tr>
<td>Dropping one or more class(es)</td>
<td>First day of registration for the semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td></td>
</tr>
<tr>
<td>Faculty-initiated drop (class does not appear on transcript)</td>
<td>Published first date of semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td>Faculty member will notify the Office of the Registrar.</td>
</tr>
<tr>
<td>Withdrawing from a class (class appears on transcript with W grade)</td>
<td>After the last day of the second week of instruction for the semester</td>
<td>Last day of the tenth week of instruction for the semester</td>
<td>Advisor’s signature required for student in degree program.</td>
</tr>
<tr>
<td>Withdrawing from all classes (total withdrawal)</td>
<td>After the last day of the second week of instruction for the semester</td>
<td>Last day of the tenth week of instruction for the semester</td>
<td>Advisor’s signature required for student in degree program; total withdrawal form must be completed.</td>
</tr>
<tr>
<td>Faculty-initiated withdrawal (class appears on transcript with W grade)</td>
<td>After the last day of the second week of instruction for the semester</td>
<td>Last day of the tenth week of instruction for the semester</td>
<td>Faculty member will notify the Office of the Registrar. Student will receive an email notification at their UAF account.</td>
</tr>
</tbody>
</table>
Appeal for late withdrawal from a class

After the last day for student-initiated withdrawals

30 days after the first published day of the next regular semester

Advisor's signature is required for students in a degree program and must complete appeal for late withdrawal paperwork; reviewed by a campus appeals committee. Late withdrawals are allowed for exceptional cases only and approval is not automatic.

Note: Add/drop, total withdrawal and credit/no-credit requests must be completed by the appropriate deadlines.

1 Add, drop, withdrawal and credit/no-credit option deadlines will be adjusted proportionally for courses that are less than a semester in length.

2 The first day of instruction for all semester-length courses is the date indicated in the official semester academic calendar. It might not be the first day that a class meets.

3 Late withdrawals are allowed for exceptional cases only, and approval is not automatic.

IMPORTANT DATES FOR SHORT, LATE-START AND COURSES OUTSIDE OF THE NORMAL SEMESTER TIMELINE.

<table>
<thead>
<tr>
<th>Action</th>
<th>Begins</th>
<th>Ends</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding a class</td>
<td>First day of registration for the semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td>Advisor's signature not required.</td>
</tr>
<tr>
<td>Dropping one or more class(es) (class does not appear on transcript)</td>
<td>First day of registration for the semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td></td>
</tr>
<tr>
<td>Faculty-initiated drop (class does not appear on transcript)</td>
<td>Published first date of semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td>Faculty member will notify the Office of the Registrar.</td>
</tr>
<tr>
<td>Withdrawing from a class (class appears on transcript with W grade)</td>
<td>After the last day of the second week of instruction for the semester</td>
<td>Last day of the tenth week of instruction for the semester</td>
<td>Advisor's signature required for student in degree program.</td>
</tr>
<tr>
<td>Withdrawing from all classes (total withdrawal)</td>
<td>After the last day of the second week of instruction for the semester</td>
<td>Last day of the tenth week of instruction for the semester</td>
<td>Advisor's signature required for student in degree program; total withdrawal form must be completed.</td>
</tr>
<tr>
<td>Credit/No-credit option</td>
<td>First day of registration for the semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td>Undergraduates only; only electives not specified in a student's core, major, minor and degree programs are eligible for this option.</td>
</tr>
<tr>
<td>Faculty-initiated withdrawal (class appears on transcript with W grade)</td>
<td>After the last day of the second week of instruction for the semester</td>
<td>Last day of the tenth week of instruction for the semester</td>
<td>Faculty member will notify the Office of the Registrar. Student will receive an email notification at their UAF account.</td>
</tr>
<tr>
<td>Appeal for late withdrawal from a class</td>
<td>After the last day for student-initiated withdrawals</td>
<td>30 days after the first published day of the next regular semester</td>
<td>Advisor's signature is required for students in a degree program and must complete appeal for late withdrawal paperwork; reviewed by a campus appeals committee. Late withdrawals are allowed for exceptional cases only and approval is not automatic.</td>
</tr>
</tbody>
</table>

NON-ATTENDANCE DROP POLICY

Students are expected to begin attending classes on the first day of instruction. Some departments, in trying to find space for students on waitlists, require that you attend the first class session or notify the department in advance that you cannot attend the first class. If you miss the first class without notifying the department, you may be dropped from the course, and the space may be assigned to a student on the waitlist.

Because of the high demand for composition and basic speech courses listed below, students who fail to attend either of the first two meetings of a basic course will be dropped even if they registered in advance and paid their fees. If space becomes available in a class from which you have been dropped by the department, you need to follow the add procedure to re-enroll.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Contexts</td>
<td></td>
</tr>
<tr>
<td>WRTG F213X</td>
<td>Writing and the Sciences</td>
<td></td>
</tr>
</tbody>
</table>
WITHDRAWING

- **Withdrawing from a Class**
  If you withdraw from a class later than the second Friday after the first day of instruction (last day to drop classes), a grade of W appears on your academic record. The W grade does not affect your GPA. However, it may impact your financial aid. Be sure to check with the Financial Aid Office before withdrawing from classes. The last day you can withdraw from a class is the 10th Friday after the first day of instruction. For specific dates, see the academic calendar (p. 10). Fees and tuition are not automatically refunded for W grades.

- **Withdrawing from a Class Shorter than the Full Semester**
  Withdrawal must be done by the 60 percent point of instruction.

- **Total Withdrawal from All Classes**
  If you want to withdraw from all your classes later than the second Friday after the first day of instruction (last day to drop classes), use a Total Withdrawal form available at http://www.uaf.edu/reg/forms/ or from the Office of the Registrar. You'll receive a W grade for all classes, which does not impact your GPA. A student-initiated total withdrawal is subject to the same deadlines as withdrawal from a class. For specific dates, see the academic calendar (p. 10). Fees and tuition are not automatically refunded for W grades.

WITHDRAWALS AFTER THE DEADLINE

Appeals for a late withdrawal after the student-initiated withdrawal deadline — the ninth Friday after the first day of instruction — are exceptions to policy and are allowed only in exceptional cases. Approval is not automatic, and you need to provide documented evidence to support your request. Acceptable serious and compelling reasons may include:

1. death in immediate family;
2. serious illness or injury of student or immediate family; and
3. factors outside of student’s control (for example, fire or flood).

Failing a course, avoiding an unsatisfactory grade or ignorance of policies are not serious and compelling reason for seeking a late withdrawal and will not be approved.

Appeals for late withdrawals must be submitted within 30 class days after the beginning of the next regular semester. Forms for an appeal for late withdrawals are available at http://www.uaf.edu/reg/forms/, through the Office of the Registrar in Signers’ Hall on the Fairbanks campus, or through local campus student services offices. Once received, the appeal will be evaluated by a campuswide committee, which will return a decision to the student. The decision of the university is final, and a student who files a written appeal under these procedures shall be expected to abide by the final disposition of the review, as provided, and may not seek further appeal of the matter under any other procedure within the university.

FACULTY-INITIATED DROP OR WITHDRAWAL

Class instructors have the right to drop students who do not meet course prerequisites, did not obtain a grade of C- or better in all prerequisite courses, or who have not participated substantially in a course. Faculty-initiated drops submitted through the second Friday after the first day of instruction will be treated as a dropped class and will not appear on any student transcript. The faculty-initiated withdrawal may occur after the second Friday but before the 10th Friday after the first day of instruction. A grade of W will appear on a student’s academic record for faculty-initiated withdrawals.

Directed and Individual Study

**Directed study** courses allow a student to contract with an instructor to enroll individually in a course that is listed in the catalog but in a semester in which the course is not offered in the regular schedule.

For example, a directed study proposal may be approved if the course is not being offered that semester and the student needs to complete the course for graduation. The title for the directed study course will include DS.

**Individual study** courses provide students with opportunities to improve their knowledge in areas of study not listed in the current catalog. A student who requests or is advised to undertake such an individual study should present a brief proposal and syllabus to the appropriate faculty member. The syllabus must be attached to an individual study form. This requirement does not apply to directed study courses. An individual study course number will end in 97.

Registration for directed and individual study courses is not available via the web. To register for a directed or individual study course, download the request form (http://www.uaf.edu/reg/forms) or pick up a copy at the Office of the Registrar. Submit the completed form to the Office of the Registrar.

Where to Get More Information

Office of the Registrar
Course Placement

Placement Requirements
Many UAF courses require placement. All students planning to take courses with specific placement requirements must meet those requirements before registering for those courses. Specific writing, reading and math placement requirements are listed in the sections below.

Students need mathematics placement at DEVM F105 or above and WRTG F111X placement to register for general education requirement science courses.

Placement Tests
Test results are required for first-time degree or certificate students, transfer students with fewer than 30 transfer credits, or students planning to take 100-level English, reading, mathematics, natural sciences and many general education courses. UAF mathematics placement test results must be on file with the Office of the Registrar or the local regional campus registration office before you can register for DEVM, math, statistics or general education science classes. Results from American College Testing Program (ACT) or the Scholastic Aptitude Test (SAT) or, for associate degree or certificate students, the ASSET, ACCUPLACER or COMPASS test must be on file with the Office of the Registrar before you can register for classes. Your ability to register may be blocked if you have not submitted required test scores.

Students who enroll in any course without meeting placement or prerequisite requirements may be dropped or withdrawn from the course through the faculty-initiated withdrawal process.

Writing placement exams should be taken within two calendar years before the start of a course; mathematics placement exams must be taken within one calendar year prior. Students enrolling in developmental or lower-division general education requirement courses must have completed any prerequisite courses within two calendar years of their enrollment.

Course Prerequisites
Course prerequisites indicate what previous preparation is needed to enroll in a course. An instructor has the right to waive a course prerequisite if the instructor documents that the student possesses the background required to succeed in the class. An instructor also has the right to drop any student from the course if he or she does not meet the prerequisite or has not received a grade of C- or better in all prerequisite courses. Students who take a course at a higher level than a corresponding prerequisite course required for a degree program are not exempt from taking that required course.

Writing
Placement into writing courses requires either prerequisite course credit or a standardized placement test that measures academic skills such as critical thinking and reading. The score from any of the tests (see English, Developmental English and Developmental Studies Course Placement Scores (p. 47) table) places the student in the appropriate writing class. A writing sample, given on the first day of class, may modify this placement. Degree or certificate students placed in developmental writing or reading courses should register for them during their first semester. These courses help students gain competencies necessary to succeed in college-level courses. If the student’s standardized test scores are below the minimums in English, Developmental English and Developmental Studies Course Placement Scores (p. 47) table and if the student’s high school cumulative GPA is 3.0 or higher, the student may be given permission to enroll in WRTG F111X by the director of university writing or rural campus English/Arts and Letters faculty.

On the basis of test scores, students may be required to take developmental English and/or developmental studies courses. These courses help students gain competencies necessary for success in college-level courses.

English, Developmental English and Developmental Studies Course Placement Scores

<table>
<thead>
<tr>
<th>Courses</th>
<th>SAT</th>
<th>ACCUPLACER</th>
<th>UAF Writing Sample For Use with ASSET Form B2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Combined Score</td>
<td>English + Writing Total Combined Score</td>
<td>Evidence Based Reading Total Combined Score</td>
</tr>
<tr>
<td>WRTG F2166/72</td>
<td>710-800</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>WRTG F212X, WRTG F213X or WRTG F214X2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRTG F1136-59</td>
<td>480-700</td>
<td>170-240</td>
<td>Writing: 265-300, Reading: 265-300</td>
</tr>
<tr>
<td>WRTG F1180-35</td>
<td>430-470</td>
<td>140-169</td>
<td>Writing: 250-264, Reading: 250-264</td>
</tr>
<tr>
<td>WRTG F0526-29</td>
<td>390-420</td>
<td>110-139</td>
<td>Writing: 235-249, Reading: 235-249</td>
</tr>
</tbody>
</table>
Foreign Languages and Literatures, students may enroll in the level of a language at which they are competent, based on prior experience.

**Math, Statistics and Developmental Math Placement Scores**

<table>
<thead>
<tr>
<th>Courses</th>
<th>ALEKS PPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>78-100</td>
</tr>
<tr>
<td>MATH F211, MATH F230X</td>
<td>70-100</td>
</tr>
<tr>
<td>MATH F152X, MATH F156X</td>
<td>65-77</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>55-100</td>
</tr>
<tr>
<td>MATH F122X, MATH F151X(^1)</td>
<td>55-77</td>
</tr>
<tr>
<td>MATH F113X, MATH F114X</td>
<td>30-100</td>
</tr>
<tr>
<td>DEVM F105(^2), DEVM F105N, MATH F113X (DEVM F071, DEVM F105G, DEVM F105H, DEVM F105J)</td>
<td>30-54</td>
</tr>
<tr>
<td>DEVM F055 (DEVM F055D, DEVM F055E, DEVM F055F, DEVM F061, DEVM F062, HLTH F116, TTCH F131)</td>
<td>17-29</td>
</tr>
<tr>
<td>DEV F068</td>
<td>5-29</td>
</tr>
<tr>
<td>DEV F054 (DEV F056, ABUS F155)</td>
<td>0-16</td>
</tr>
</tbody>
</table>

1. Placement for BIOL F115X, BIOL F116X, CHEM F105X, CHEM F106X.
2. Placement for all general education requirements for natural sciences courses except those listed different in the catalog.

**Note:** Academic advisors should check test score and prerequisite course dates on BANNER or UAOnline and instruct students to retest if their test scores are more than ONE year old for the placement test date and TWO years old for the course prerequisite date. Students who enroll in any course without meeting placement or prerequisite requirements may be dropped or withdrawn from the course through the faculty-initiated withdrawal process.

**Note:** Completion of DEV F068 will meet the requirements needed to enter DEV F071, DEV F105, and DEV F105N.

**Note:** DEV F051 is appropriate for students needing a review of basic math skills.

**Note:** DEV F065 assists students in reviewing and reinforcing course concepts covered by DEV F054, DEV F055, DEV F062, DEV F071, DEV F105 and DEV F105N.

**Note:** Students, in consultation with their academic advisor or course instructor, may opt to take a course lower than their placement.

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**Mathematics**

Mathematics course placement varies according to the type of degree the student is planning to pursue and the corresponding math course(s) needed. (See the degree program requirements (p. 142) for more detail.) The UAF mathematics placement test is used to determine math placement. Minimum test scores for placement in math and developmental math courses are listed in Math, Statistics and Developmental Math Placement Scores (p. 48) table.

Students who have limited access to or limited experience with the Internet should contact the Department of Mathematics and Statistics or the Department of Developmental Education for assistance.

**Foreign Language**

Students may not register for foreign language classes higher than F101 unless they have received credit through CLEP, AP, transfer or another UAF-approved test for the prior levels. With approval of the Department of
ACADEMICS AND REGULATIONS

To encourage a positive learning environment and high academic standards, universities establish specific scholastic requirements and community rules. At UAF, academic regulations address issues such as grading, academic standing, and student rights and responsibilities. Since policies change from time to time, it’s important for students to stay informed about current requirements. By enrolling at UAF, a student agrees to abide by university rules, regulations and academic standards.

- Communication via Email (p. 49)
- Class Standing (p. 49)
- Full- or Part-Time Status/Study Load (p. 49)
- Undergraduate Credit Load and Overloads (p. 50)
- Grading Options (p. 50)
- Grading System and Grade Point Average Computation (p. 50)
- Attendance (p. 52)
- Midterm Progress Reporting (p. 52)
- Academic Standards (p. 52)
- Appeal of Academic Decisions (p. 53)
- Students’ Rights and Responsibilities (p. 54)
- Information Release and FERPA (p. 55)
- Nondiscrimination Policy and Disclaimer (p. 55)

Communication via Email

UAF uses email to communicate with students about many important matters. Email is often the only way some information is distributed, so it’s important you check your email frequently and read messages sent to you from the university. For example, if you are waitlisted for a class, an email will be sent to you when a seat becomes available. If you don’t act on the email within a specified time frame, you risk losing that seat to the next student on the waitlist.

The university automatically assigns each student an official University of Alaska email account. If you prefer to use another email account, rather than your university-generated one, there are three steps to take to ensure you get all official communications:

1. Log in to UAOnline (https://uaonline.alaska.edu), and enter or update your preferred email address under the “Personal Information” menu.
2. Log in to your University of Alaska email account (http://www.alaska.edu/google/) and set up a forward to whichever account you prefer.
3. When switching active email accounts, repeat steps 1 and 2 to ensure your preferred email is always up-to-date.

You are responsible for knowing — and when appropriate, acting on — the contents of all university communications sent to your university-generated email address.

Class Standing

Undergraduate Students

Class standing is determined by the total credits you have earned.

<table>
<thead>
<tr>
<th>Class</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-year</td>
<td>0-29</td>
</tr>
<tr>
<td>Sophomore</td>
<td>30-59</td>
</tr>
<tr>
<td>Junior</td>
<td>60-89</td>
</tr>
<tr>
<td>Senior</td>
<td>90 or more</td>
</tr>
</tbody>
</table>

Transfer students are given class standing based on the number of transfer credits accepted by UAF. Nondegree students are registered without class standing.

Postbaccalaureate Students

Students who are in a postbaccalaureate teacher certification program only have a class standing of “postbaccalaureate.”

Graduate Students

Students are given the class standing of “graduate” only after being officially admitted to a graduate degree or certificate program.

Full- or Part-Time Status/Study Load

Undergraduate Students

Undergraduate students registered for 12 or more semester credits are classified as full-time students, and those enrolled in 6 credits are considered part-time students. To complete an undergraduate program in four years, you must earn 15 or more credits each semester. You may enroll in up to 18 credits per semester without special permission. To enroll in more than 18 credits you need a 3.0 cumulative GPA and an overload approval from your advisor.

Enrollment in the two-week WINTERmester and MAYmester summer sessions is limited to 3 credits per session. Enrollment in the six-week summer session is limited to 7 credits per session, and enrollment in the 12-week summer session is limited to 14 credits.

Credits carried at any UA unit (or any combination of UAF/UAA/UAS) are used to determine study-load hours and full-time or part-time classification. Audited courses and courses taken for credit by examination are not included in the study-load computation.

Graduate Students

A graduate student registered for 9 or more semester credits, with 3 or more at the 600 level, is classified as a full-time student. A graduate student enrolled in 5-8 credits is classified as part-time. Except in unusual circumstances, enrollment in the fall/spring semesters is limited to 1 credit per week. You may enroll in up to 14 credits per semester without special permission. To enroll in 15-19 credits you must be in good standing and obtain an overload approval from your advisor and department chair. Enrollment in more than 19 graduate credits will be allowed only in extraordinary circumstances, and requires good standing and overload approval from your advisor, department chair, college/school and the dean of the graduate school.

Enrollment in the two-week WINTERmester and MAYmester summer sessions is limited to 3 credits per session. Enrollment in the six-week
summer session is limited to 7 credits per session, and enrollment in the 12-week summer session is limited to 14 credits.

Credits carried at any UAF department are considered in determining study-load hours and full-time or part-time classification. Audited courses are not included in the study-load computation.

**Undergraduate Credit Loads and Overloads**

Undergraduate students in good standing may take up to 18 credits in a regular (fall/spring) semester. Students who are on academic probation are limited to 13 credits per regular semester; students who have been academically disqualified are limited to 10 credits per regular semester.

Enrollments in the two week WINTERmester and MAYmester sessions is limited to 3 credits per session. WINTERmester counts as a spring semester for financial aid purposes, and MAYmester counts as summer; however, these credits are not included in the total credit limit for the respective semesters. Enrollment in the summer semester is limited to 8 credit per six week session for a total of no more than 15 credits.

Students who wish to take more than 18 credits in a regular semester must have cumulative GPA of 3.0 or higher. Any student in good standing seeking an overload of 19 to 23 credits must get advisor approval; for more than 23 credits, or for any student with less than a 3.0 GPA, the dean of the student’s college or school must also approve.

**Grading Options**

**Auditing**

Students who want to enroll in one or more courses for informational purposes may only register as an auditor if space is available and auditing is permitted in the class. You pay the standard credit fees for the course, but the credits are not included in the computation of study load for full-time/part-time determination or for overload status.

The requirement, acceptance and review of work, and lab privileges are at the discretion of the instructor. A grade of AU (audit) is granted to students who complete an audited course, but no credit is awarded. Audited courses do not apply toward degree requirements, and they will not transfer to other institutions.

When you register you should indicate on the registration form your desire to audit a course. Students who want to change from audit to credit must request the change before the deadline to add a course. Requests made after the third Friday after the first day of instruction must be approved by the instructor of the course. All changes must be made before the deadline for student-initiated withdrawals.

Instructors set the requirements under which an AU grade is to be recorded, and they must submit AU for students who satisfy requirements. Auditors not receiving an AU grade receive a W grade. If you have audited a class, you cannot request local credit by exam for that class for a period of at least one year.

**Changing from Credit to Audit**

The add/drop process may be used to change from credit status to audit status for a class. The change must be made by the end of the second full week of instruction by following the add/drop process. Changes after this date require approval by the instructor of the course. For degree students an advisor’s signature is also required. You may not change from credit to audit after the last day for student-initiated withdrawals.

**Credit/No-Credit Option**

*Undergraduates only* — The credit/no-credit option encourages students to explore areas of interest not necessarily related to their major. This option may be used for one undesignated elective (an elective that is not specifically required for your major) each semester. The deadline for choosing the credit/no-credit option is the third Friday after the first day of instruction in a semester. The instructor does not know your status in the course, and you complete the course the same way as other students in the class. Credit for the course is awarded if your performance is at the C- grade level or higher; if your performance falls below that level, the course will not appear on your academic record. In either case, the course will not be included in any GPA calculations. If credit is granted, a CR grade will be entered for the course.

Under the credit/no-credit option, students may take undesignated elective courses or courses to meet the minimum credit requirements for a degree. Major or minor requirements and those specified as foundation courses are not allowed.

**Grading System and Grade Point Average Computation**

All course grades are letter grades unless otherwise specified in the class schedule. The method of grading (letter or pass/fail) is an integral part of the course structure and is included in the course description. Instructors are expected to state their grading policies in writing at the beginning of each course. Grades appearing on academic records are:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>“A” (including A+ and A-) indicates a thorough mastery of course content and outstanding performance in completion of course requirements.</td>
</tr>
<tr>
<td>B</td>
<td>“B” (including B+ and B-) indicates a high level of acquired knowledge and performance in completion of course requirements.</td>
</tr>
<tr>
<td>C</td>
<td>“C” (including C+ and C-) indicates a satisfactory level of acquired knowledge and performance in completion of course requirements.</td>
</tr>
<tr>
<td>D</td>
<td>“D” (including D+ and D-) indicates a minimal level of acquired knowledge and minimal performance in completion of course requirements. This grade does not satisfy requirements for courses in the major, minor, core or graduate programs.</td>
</tr>
<tr>
<td>F</td>
<td>“F” indicates failure to meet a minimal level of understanding of course content and/or performance in completion of course requirements. All F grades, including those earned in pass/fail courses, are included in the GPA calculations.</td>
</tr>
<tr>
<td>P</td>
<td>Pass — The pass grade indicates satisfactory completion of course requirements at either the undergraduate or graduate level. A pass grade does not affect your GPA but credits earned with pass grades may meet degree requirements and may be used as a measure of satisfactory progress. Satisfactory performance is the equivalent of a C grade (2.0) or better in undergraduate course work and B grade (3.0) or better in graduate courses. The entire class must be graded pass/fail, with the grading system noted in the class schedule.</td>
</tr>
<tr>
<td>CR</td>
<td>Indicates credit was given under the credit/no-credit option.</td>
</tr>
</tbody>
</table>
DF  Deferred — This designation is for courses such as theses and special projects that require more than one semester to complete. It indicates that course requirements cannot be completed or that institutional equipment breakdown resulted in noncompletion by the end of the semester. Credit may be withheld without penalty until the course requirements are met within an approved time. For undergraduate courses, the grade will automatically change to a W (withdrawn) after two years unless an extension is requested and granted by the registrar.

AU  Audit — A registration status indicating that you have enrolled for informational instruction only. No academic credit is granted. You may be given a W if you fail to attend a course you are auditing.

W  Withdrawn — Indicates withdrawal from a course after the first two weeks of a semester.

I  Incomplete — An incomplete is a temporary grade used to indicate that the student has satisfactorily completed (C (2.0) or better) the majority of work in a course but for personal reasons beyond the student’s control, such as sickness, has not been able to complete the course during the regular semester. Normally, an incomplete is assigned in a case when the student is current in the class until at least the last three weeks of the semester or summer session. Negligence or indifference are not acceptable reasons for an I grade. Normally, a student will initiate a request for an incomplete. If approving the request, the instructor will send a copy of the approval, a statement of the work remaining and the timeline for making up the incomplete to both the student and the Registrar. If the instructor assigns a grade of incomplete without the student having requested it, the instructor will send a statement of the work remaining and the timeline for making up the incomplete to both the student and Registrar. An incomplete must be made up within one year or it will automatically be changed to an F grade. One year is the longest amount of time allowable for completion of the I. The I grade is not computed in the student’s GPA until it has been changed to a regular letter grade by the instructor or until one year has elapsed, at which time it will be computed as an F. A senior cannot graduate with an I grade in either a university or major course requirement. To determine a senior’s GPA for honors at graduation, the I grade will be computed as a failing grade. In extraordinary circumstances which are beyond the student’s control (such as military deployment or major and extended illness of the student), an extension may be granted. The student must request the extension in writing prior to the original deadline date and the request must be approved by: the instructor, the dean, and the provost.

NB  No Basis — Instructors may award a No Basis grade if there is insufficient student progress and/or attendance for evaluation to occur. No credit is given, nor is NB calculated in the GPA. This is a permanent grade and may not be used to substitute for the Incomplete. It cannot be removed by later completing outstanding work.

NS  Not Submitted — Grade not submitted by instructor.

NG  Non-Graded — Used for sections that are not graded, usually continuing education units (CEUs) or lab sections. Has no impact on GPA calculation.

The letter grades A, B, C and D may include a “+” or “-” to indicate that a student’s level of performance is slightly higher or lower than that of the letter grade alone.

• Computing your GPA
Your grade point average is a weighted numerical average of the grades you earn in your courses at UAF. To compute your GPA, divide the total number of credits you have attempted into the total number of grade points you have earned. Grade points are calculated by multiplying the number of grade points awarded, according to the chart below, by the number of credits attempted for the course. The following grades are figured in your GPA: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F. Grades of I, DF, W, P, NB, AU and CR do not carry grade points and do not affect your GPA.

Noncredit courses, transfer credits and credit by examination do not affect the GPA calculations. Your “graduating GPA” is your cumulative grade point average at the time of graduation. If, after earning a bachelor’s degree, you take more classes from UAF as a nondegree student, grades for those courses won’t be factored into your official graduating GPA. The exception is students who are officially admitted to a second degree program.

• Repeating Courses
All grades (original and retakes) for a course completed at UAF are included on your academic record, but only the last grade earned for a course is computed in your GPA unless the course is one that can be repeated for credit. For purposes of calculating honors for graduation, all courses (even those repeated) are included in the GPA.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade points per credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
</table>

1 Minimum grade possible for a course to count toward general education requirements, major, minor or degree requirements, or as a prerequisite for another course

2 Minimum grade possible to earn credit for a course

Note: Some degree programs require C or higher for their major or minor requirements. Check program listings for your degree requirements.

### Example of Grade Point Average Computation

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
<th>Credits x Grade points per credit</th>
<th>= Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F111X</td>
<td>4</td>
<td>A</td>
<td>4 cr × 4 pts</td>
<td>16</td>
</tr>
<tr>
<td>COJO F131X</td>
<td>3</td>
<td>D+</td>
<td>3 cr × 1.3 pts</td>
<td>3.9</td>
</tr>
<tr>
<td>WRTG F111X</td>
<td>3</td>
<td>C-</td>
<td>3 cr × 1.7 pts</td>
<td>5.1</td>
</tr>
</tbody>
</table>
Good Standing

Undergraduate students — You are in good standing if your cumulative GPA and most recent semester GPA are 2.0 or better.

Graduate students — To maintain good academic standing in UAF graduate programs, students must:

a. Maintain a cumulative GPA of 3.0 in courses taken since admission to graduate school. Before advancing to candidacy, however, a cumulative GPA of 3.0 is required. You must earn at least a B grade in 400-level courses.

b. Be registered at UAF with a minimum of 6 graduate or 400-level credits per year unless on approved leave of absence.

c. Abide by all parts of the Student Code of Conduct.

d. Have a current graduate study plan or an advancement to candidacy submitted and approved unless you are within the first year of graduate study.

e. Have on file with the Graduate School by May 15 of each year an annual report from the graduate advisory committee certifying satisfactory progress. This is the responsibility of the student. Students starting in January need not submit an annual report until May of the next academic year. If a satisfactory annual report is not filed as specified, the student may be placed on probation.

f. Pass any required qualifying exams or comprehensive exams. Departments may set the number of times a student may retake an exam.

Academic Honors

Undergraduate and certificate students — To be eligible for academic honors at the end of a semester, you must be a full-time student in a UAF undergraduate degree or certificate program who has completed at least 12 UA institutional credits graded with the letter grades A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D- or F. If you have received an incomplete or deferred grade, your academic honors cannot be determined until those grades have been changed to permanent grades. Academic honors are recorded on your permanent record. You will make the chancellor’s list with a semester GPA of 3.9 or better, or the dean’s list with a GPA of 3.5-3.89. UAF announces the students who have earned honors each semester. Students with incompletes or deferred grades that are changed after publication of honors will not be announced separately. If you’ve requested that information not be released about you (under FERPA), your name will not be released to the media.

Warning

Students whose semester GPA falls below 2.0 but whose cumulative GPA is 2.0 or higher will be placed on academic warning. Students on academic warning will be contacted and instructed to meet with an advisor to discuss academic support resources.

Probation

Undergraduate students — Students whose semester and cumulative GPA falls below 2.0 after any semester, including the summer session, will be put on academic probation. Students on probation may not enroll in more than 13 credits a semester unless an exception is granted by the appropriate dean. Probation may include additional conditions as determined by the dean of the college or school in which the student’s major is located. Students on probation will be referred for developmental advising/education and/or to an advising or support counseling center. The student should work with an academic advisor to prepare an
academic plan for achieving a higher GPA. Removal from probation requires the student’s cumulative and semester GPAs to be at least 2.0.

**Graduate students** — Probationary status indicates a student is not in good standing. When a student is placed on probation, the dean of the school or college and the advisory committee will tell the student what requirements are necessary to return to good standing. If a student does not return to good standing by the end of two semesters, he or she may be dismissed from the degree program.

**Academic Disqualification**

**Undergraduate students** — Undergraduate students on probation whose semester and cumulative GPA fall below a 2.0 for two consecutive semesters will be placed on academic disqualification. Academically disqualified students may continue their enrollment at UAF only as nondegree students, are limited to 10 credits per semester and are ineligible for most types of financial aid.

To be eligible for readmission to an academic degree program, the student must:

1. Achieve a 2.0 cumulative grade point average by repeating courses previously failed at UAF and reapply for admission, or
2. Complete 9 credits for a baccalaureate or associate program, or 6 credits for a certificate program, with a GPA of 2.0 or higher. The courses may be completed at UAF and/or another regionally accredited institution and must be letter-graded. Grades of P or CR will not be considered. In considering students for readmission, deans will look for course work taken that relates to the student’s intended program.

Students seeking readmission into an occupational endorsement program must have a 2.0 GPA.

Readmission to a degree program is not automatic or guaranteed. The student must reapply and the application must be approved by the dean. The student may apply to the same program from which they were disqualified, or to a different program or level (e.g. baccalaureate, associate or certificate). Readmission may be granted with a status of probation or with other conditions as specified by the dean. It is vitally important for academically disqualified students to work closely with their academic advisor in developing a realistic and timely educational plan.

**Academic Dismissal**

**Graduate students** — If recommended by the department chair, graduate advisory committee and dean of the college or school, and approved by the dean of the Graduate School, a student will be dismissed because of unsatisfactory performance. Unsatisfactory performance is deemed as one or more of the following:

a. Exceeding maximum time limit for degree.

b. Not being registered at UAF for a minimum of 6 credits per year unless on approved leave of absence.

c. Having less than a 3.0 cumulative GPA for courses taken since admission to graduate school.

d. Being on probationary status for more than two consecutive semesters.

e. Violating the Student Code of Conduct.

f. Lacking progress as judged by the advisory committee and documented on the student’s annual report.

g. Having substantive inaccuracies in the original application for admission.

If the student does not have a graduate advisory committee, dismissal can occur upon the recommendation of the department chair and the dean of the college or school, with approval from the dean of the Graduate School.

**Appeal of Academic Decisions**

The University of Alaska appeals policies can be found in the Regents’ Policy and University Regulation Part IX — Student Affairs, Chapter 09.03, Student Dispute Resolution, available online at http://www.alaska.edu/bor/policy-regulations/.

**Grade Error Policy**

A grade other than an incomplete or deferred submitted by the instructor after a course is completed is the final grade and becomes part of the student’s permanent academic record. A grade will not be changed unless the instructor made a legitimate error in calculating the grade. If an error has occurred, contact the instructor immediately. Grade error corrections must be received within 30 class days after the beginning of the next regular semester, and must be approved by the instructor’s department head and dean. This is not an appeal of an academic decision.

**Grade Appeals Policy**

A student who wishes to appeal a faculty decision on a final grade must submit a grade appeal form, available at the Office of the Registrar. There are only two valid reasons for appeal of a grade:

1. an error in calculation of the grade, or
2. arbitrary and capricious grading.

Evidence of either must be documented for an appeal to be successful. Merely wanting a higher grade is not sufficient grounds to justify an appeal.

The full text of the grade appeals policy can be found at http://www.uaf.edu/uaegov/faculty-senate/policies-procedures/grade-appeals/. The grade appeal form is on the Registrar’s website at http://www.uaf.edu/reg/forms/grade_appeal.pdf. Grade appeal forms are also available at the Office of the Registrar and at the Center for Student Rights and Responsibilities office.

**Academic Decisions Other Than Grades**

Students have the right to appeal academic decisions other than grades. Decisions that fall into this category include, but are not limited to, denial of admission, faculty-initiated withdrawal, dismissal from program or pass/fail decisions of a faculty committee on non-course examinations (such as qualifying, comprehensive or thesis examinations).

Before beginning the informal or formal appeal process, the student should first address the person who made the decision. Often problems can be resolved and misunderstandings cleared up through this step. If the student does not find the outcome acceptable, the next step is an informal appeal.

The informal appeal must be submitted to the academic leader of the department or program within 15 class days after the beginning of the next regular semester. An extension to the deadline may be approved by the academic leader with a written request and supporting
Students' Rights and Responsibilities

The university subscribes to principles of due process and fair hearings as specified in the "Joint Statement on Rights and Freedoms of Students." This document can be found at http://www.uaf.edu/csrr/. You are encouraged to read it carefully.

Most students adjust easily to the privileges and responsibilities of university citizenship. The university attempts to provide counsel for those who find the adjustment more difficult. UAF may terminate enrollment or take other necessary and appropriate action in cases where a student is unable or unwilling to assume the social responsibilities of citizenship in the university community.

Student Code of Conduct

1. As with all members of the university community, the university requires students to conduct themselves honestly and responsibly and to respect the rights of others. Students may not engage in behavior that disrupts the learning environment, violates the rights of others or otherwise violates the Student Code of Conduct (Code), university rules, regulations, or procedures. Students and student organizations will be responsible for ensuring that they and their guests comply with the Code while on property owned or controlled by the university or at activities authorized or sponsored by the university.

2. The university may initiate disciplinary action and impose sanctions on any student or student organization found responsible for committing, attempting to commit, or intentionally assisting in the commission of any of the following prohibited forms of conduct:
   a. cheating, plagiarism or other forms of academic dishonesty;
   b. forgery, falsification, alteration or misuse of documents, funds, property or electronic records;
   c. damage or destruction of property;
   d. theft of property or services;
   e. harassment;
   f. discrimination;
   g. hazing;
   h. endangerment, assault or infliction of physical harm;
   i. gender-based or sexual misconduct;
   j. disruptive or obstructive actions;
   k. mistreatment of animals;
   l. misuse of firearms, explosives, weapons, dangerous devices or dangerous chemicals;
   m. failure to comply with university directives;
   n. misuse of alcohol;
   o. misuse of drugs or other intoxicants;
   p. violation of regents' policy, university regulation, rules or procedures; or
   q. any other actions that result in unreasonable interference with the learning environment or the rights of others.

3. Examples of actions that constitute these prohibitions will be described in the university regulation and MAU rules and procedures.

4. This policy and university regulation and MAU rules and procedures are not intended to define prohibited conduct in exhaustive terms, but rather to set forth examples to serve as guidelines for acceptable and unacceptable behavior.

The university has established procedures for enforcing the UA code of conduct. Each student at the university shall be afforded due process in all disciplinary matters. For a complete guide to these procedures, please refer to Board of Regents Policy and University Regulation 09.02 (http://www.alaska.edu/bor/policy/09-02.pdf) (PDF).

For additional information and details about the student academic misconduct policy, please visit http://www.uaf.edu/csrr/.

Student Behavioral Standards

Education at the university is conceived as training for citizenship as well as for personal self-improvement and development. Generally, UAF behavioral regulations are designed to help you work efficiently in courses and live responsibly in the campus environment. They are not designed to ignore your individuality but rather to encourage you to exercise self-discipline and accept your social responsibility. These regulations, in most instances, were developed jointly by staff and students. Contact the Center for Student Rights and Responsibilities for more information.

UAF provides one level of administrative oversight for decisions made by university employees. Individuals are encouraged to first attempt informal resolution with the employee making the decision or the employee's supervisor. An individual seeking further review has the option of filling a written request with the employee's supervisor for
decisions made by university employees that are not covered in other university policies, regulations and procedures. The request must be signed and include all relevant information to be considered during the review. The supervisor will consider the information available at the time of the review and provide written notification of the outcome to the individual who filed the request. The supervisor’s written response will be the final decision within the university.

Information Release and FERPA

The Office of the Registrar is responsible for keeping student education records. The Family Educational Rights and Privacy Act of 1974, as amended, protects the privacy of education records, establishes the right of students to inspect and review their education records, and provides guidelines for the correction of inaccurate or misleading data through informal and formal hearings.

FERPA affords students certain rights with respect to their education records. They are:

1. The right to inspect and review the student’s education records within 45 days of the day the university receives a request for access. Students should submit a written (letter or fax) request to the Office of the Registrar that identifies the record(s) they wish to inspect. The registrar will make arrangements for access and notify the student of the time and place where records may be inspected. If the records are not maintained by the Office of the Registrar, registrar-designated staff will refer the student to the appropriate personnel or office to access the record.

2. The right to request the amendment of a record they believe is inaccurate or misleading. A student may ask the university to amend the student’s education records if he/she believes they are inaccurate or misleading or otherwise in violation of the student’s privacy or other rights. If the university decides not to amend the record as requested by the student, the university will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. If the university denies the amendment request after the hearing, the student is given the right to insert a statement in the education record.

3. The right to consent to disclosures of personally identifiable information contained in the student’s education records, except to the extent that FERPA authorizes disclosure without consent. The university may release, without consent, certain directory information.

The university discloses education records without a student’s written consent under the FERPA exception for disclosure to school officials with legitimate educational interests. A school official is a person designated by the university to perform an assigned function on behalf of the university, including an individual employed by the university as an administrator, supervisor, instructor or administrative staff member (including law enforcement unit personnel and health staff) or a volunteer; a person or company with whom the institution has contracted to perform a service instead of using university employees (such as an auditor, attorney or other third party); a member of the board of regents; a government entity or any other entity with which a student is placed as part of his or her education; or a student serving on an official committee (such as a judicial or academic review committee or scholarship committee) or helping another university official perform his or her tasks. A university official has a legitimate educational interest if the official needs the student’s education record to perform work appropriate to his or her position.

Upon request, the university also discloses education records without consent to officials of another school in which a student seeks or intends to enroll, or where the student is already enrolled.

The following information is designated as directory information by the university:

a. Names of students
b. Dates of attendance at the university
c. Program/major field(s) of study
d. Degrees and certificates received including dates
e. Participation in officially recognized university activities
f. Academic and co-curricular awards, honors, and scholarships received and dates received
g. Weight and height of students on athletic teams
h. Students’ email addresses
i. Hometown, city and state

Students may inform the Office of the Registrar in writing that they do not give permission for the university to release their directory information, or they may submit the request through UAOnline at http://uaonline.alaska.edu. The request is valid until a subsequent request to release directory information is received in writing or through UAOnline.

Students have the right to file a complaint with the U.S. Department of Education concerning alleged failures by the university to comply with the requirements of FERPA. The name and address of the office that administers FERPA is:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202-5920

The University of Alaska Board of Regents’ Policy and University Regulation (09.04.) regarding education records can be reviewed at http://www.alaska.edu/bor/policy-regulations/.

Honors and Scholarships

Names of students receiving awards or scholarships or who appear on the dean’s list or chancellor’s list are released to the media unless a student has requested that no directory information be released. Instructions for electing FERPA confidentiality are available at http://www.alaska.edu/studentservices/ferpa/elect/.

Nondiscrimination Policy and Disclaimer

Notice of Nondiscrimination
(BOR POLICY & REGULATION 01.02.020 (HTTP://ALASKA.EDU/BOR/POLICY-REGULATIONS))

The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status.

When implementing this commitment, the University is guided by Title VI and VII of the Civil Rights Act of 1964 and Civil Rights Act

The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment.

This policy therefore affects employment policies and actions, as well as the delivery of educational services at all levels and facilities of the University. Further, the University's objective of ensuring equal opportunity will be met by taking affirmative action: i.e., making intensified, goal-oriented efforts to substantially increase the participation of groups where their representation is less than proportionate to their availability; providing reasonable accommodations to employees and students with disabilities; and ensuring that employment opportunities are widely disseminated to agencies and organizations that serve underrepresented protected classes.

The following person has been designated to handle inquiries regarding the nondiscrimination policies:

University of Alaska Anchorage
Director, Office of Equity and Compliance
3890 University Lake Drive, Suite 108
Anchorage, AK 99508
Phone: 907-786-4680
E-mail: uaa_titleix@uaa.alaska.edu
Website: https://www.uaa.alaska.edu/about/equity-and-compliance/

University of Alaska Fairbanks
Director of Diversity and Equal Opportunity
1656 Columbia Circle
PO Box 756910
Fairbanks, AK 99775-6910
Phone: 907-474-7300
E-mail: uaf-deo@alaska.edu
Website: http://www.uaf.edu/oeo/

University of Alaska Southeast
Director of Human Resources
11066 Auke Lake Way
Juneau, Alaska 99801
Phone: 907-796-6473
E-mail: gcheney@alaska.edu
Website: http://uas.alaska.edu/hr

For sex discrimination claims or other inquiries concerning the application of Title IX of the Education Amendments of 1972 and its implementing regulations, individuals may contact the University's Title IX Coordinator or the Assistant Secretary in the U.S. Department of Education Office of Civil Rights:

UAA Title IX Coordinator
3890 University Lake Drive, Suite 108, Anchorage, AK 99508
Phone: 907-786-4680
E-Mail: uaa_titleix@uaa.alaska.edu

Website: www.uaa.alaska.edu/about/equity-and-compliance/

UAF Title IX Coordinator
1656 Columbia Cr., Fairbanks, AK 99775
Phone: 907-474-7300
E-Mail: uaf-tix@alaska.edu
http://www.uaf.edu/titleix/

UAS Title IX Coordinator
11066 Auke Lake Way, Juneau, AK 99801
Phone: 907-796-6036
E-Mail: uas_jytitle9@alaska.edu
http://www.uas.alaska.edu/policies/titleix.html

Office for Civil Rights, Seattle Office
U.S. Department of Education
915 Second Ave., Room 3310
Seattle, WA 98174-1099
Phone: 206-607-1600
TDD: 800-877-8339
E-mail: OCR.Seattle@ed.gov
Website: http://www2.ed.gov/about/offices/list/ocr/docs/howto.html

For employment or educational discrimination, students, parents, employees and applicants for employment may file a complaint with the U.S. Department of Education within 180 calendar days of the alleged discriminatory act.

Office for Civil Rights, Seattle Office
U.S. Department of Education
915 Second Ave., Room 3310
Seattle, WA 98174-1099
Phone: 206-607-1600
TDD: 800-877-8339
E-mail: OCR.Seattle@ed.gov
Website: http://www2.ed.gov/about/offices/list/ocr/docs/howto.html

For employment discrimination, employees and applicants for employment may file a complaint with the Equal Employment Opportunity Commission at the below addresses within 180 calendar days of the alleged discriminatory act.

Equal Employment Opportunity Commission
Federal Office Building
909 First Avenue
Suite 400
Seattle, WA 98104-1061
Phone: 800-669-4000
Fax: 206-220-6911
TTY: 800-669-6820
Website: http://www.eeoc.gov/employees/charge.cfm

For educational discrimination, individuals may file a complaint with the U. S. Department of Justice

U.S. Department of Justice Civil Rights Division
950 Pennsylvania Avenue, N.W.
Educational Opportunities Section, PHB
Washington, D.C. 20530
Phone: 202-514-4092 or 1-877-292-3804 (toll-free)
Fax: 202-514-8337
E-mail: education@usdoj.gov
Website: http://www.justice.gov/crt/how-file-complaint#three
For employment or educational discrimination, individuals may file a complaint with the State of Alaska:

Alaska State Human Rights Commission
800 A Street, Suite 204
Anchorage, AK 99501-3669
Anchorage Area: 907-274-4692
Anchorage Area TTY/TDD: 907-276-3177
Toll-Free Complaint Hot Line (in-state only): 800-478-4692
TTY/TDD Toll-Free Complaint Hot Line (in-state only): 800-478-3177
Website: http://www.humanrights.alaska.gov

For discrimination related to a Department of Labor funded grant, individuals may file a complaint with the U. S. Department of Labor within 180 calendar days of the alleged discriminatory act.

U.S. Department of Labor
ATTENTION: Office of External Enforcement
Director, Civil Rights Center
200 Constitution Avenue, NW
Room N-4123
Washington, DC 20210
Fax: 202-693-6505, ATTENTION: Office of External Enforcement (limit of 15 pages)
E-mail: CRCExternalComplaints@dol.gov
Website: http://www.dol.gov/oasam/programs/crc/index.htm

For discrimination related to a National Science Foundation funded grant, individuals may file a complaint with the National Science Foundation within 180 calendar days of the alleged discriminatory act.

National Science Foundation
Complaints Adjudication & Compliance Manager
Office of Diversity & Inclusion (ODI)
4201 Wilson Blvd., Rm. 255
Arlington, VA 22230
Phone: 703-292-8020
E-mail: tsisley@nsf.gov
Website: http://www.nsf.gov/od/odi/

Caring Statement
At the University of Alaska Fairbanks, the safety, security and well-being of our students, faculty, staff and visitors are our foremost concern. To help you make an informed decision and comply with the Clery Act, we publish an annual Campus Security Report. This report contains information from the three previous calendar years concerning reported offenses, arrests, crimes and disciplinary referrals that occurred on campus; in certain off-campus buildings owned or controlled by the university; and on public property within or immediately adjacent to and accessible from the campus. The report also includes institutional policies concerning campus security, alcohol and other drug use, crime prevention strategies, and how to report crimes, sexual assault and other related matters.

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Accordingly, if regulations or program requirements of the university in any way conflict with information contained in this catalog, the current regulations and program requirements govern. The university reserves the right to initiate changes in any of its regulations or program requirements affecting operation of the university and its program requirements; such changes shall become effective upon whatever time periods are required by applicable statutes, university regulations or program requirements.

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COSTS AND FINANCIAL AID

Tuition and Fees

Tuition

Tuition is determined by the number of credit hours in which the student is enrolled, the level of the courses and the student's residency status (see the 2018-2019 tuition table below).

- Undergraduate students are considered full time at 12 or more credits.
- Graduate students are considered full time at 9 or more credits.
- Students enrolled in no more than 4 credits per semester pay tuition at the resident rate.

2018-2019 TUITION

<table>
<thead>
<tr>
<th>Level of Courses</th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-200-level courses</td>
<td>$212/credit</td>
<td>$751/credit</td>
</tr>
<tr>
<td>300-400-level courses</td>
<td>$256/credit</td>
<td>$795/credit</td>
</tr>
<tr>
<td>500-level courses</td>
<td>varies</td>
<td>varies</td>
</tr>
<tr>
<td>600-level courses</td>
<td>$489/credit</td>
<td>$1028/credit</td>
</tr>
</tbody>
</table>

Note: Audited credits are charged at the same rate as other credits.

RESIDENT AND NONRESIDENT TUITION

Students eligible for Alaska resident tuition generally include:

- an Alaska resident, defined as a person who is a U.S. citizen or eligible noncitizen who has been physically present in Alaska for at least the past two years;
- students who received a State of Alaska Permanent Fund Dividend within the last 12 months and can certify they have been in Alaska for the past 12 months;
- military personnel on active duty, their spouses and dependent children;
- members of the National Guard, their spouses and dependent children;
- veterans of the U.S. armed forces, and their dependents, who are eligible for Veterans Affairs educational benefits;
- dependent children of a person who graduated and holds an associate, bachelor’s, master’s or doctoral degree from the University of Alaska;
- dependent children of an Alaska resident as evidenced by the most current federal income tax return filed within the past 16 months;
- students participating in the Western Interstate Commission on Higher Education Western Regional Graduate Program;
- students enrolled in 4 or fewer credit hours within the UA system during a semester;
- students from other states or provinces whose public universities waive nonresident tuition surcharges for Alaska residents, or who are from foreign cities and provinces with established Alaska sister city or sister province relationships;
- students designated by the UA Scholars Program as UA Scholars;
- participants of the University of Alaska College Savings Plan;
- spouse or dependent children of a University of Alaska employee; or
- students who graduated within the past 12 months from a qualified Alaska high school.

Students will be considered nonresident if within two years prior to applying for residency they:

- were absent from Alaska for an aggregate of more than 120 days for other than documented absences due to illness or attendance at another educational institution while maintaining Alaska residency;
- committed any act inconsistent with Alaska residency, such as claiming residency in another state or voting as a resident of another state;
- registered as a resident in an educational institution in another state;
- paid tuition at the University of Alaska at the Western Undergraduate Exchange program rate.

To prove physical presence, students must provide documentation of one of the following:

- student moved household goods to Alaska at least two years ago;
- student’s lease, rental or ownership of real property in Alaska for at least the prior two years;
- student’s permanent employment in Alaska for at least the prior two years;
- other documentation of Alaska residency for the two prior years deemed satisfactory by the UAF Office of Admissions.

Students applying for resident tuition assessment must file a residency form with the Office of Admissions before the published end of the add/drop period for regular semester-length courses for the semester for which residency is sought. Failure to file and provide adequate proof of physical presence by this date will waive any claim that the student was eligible for resident tuition assessment for that semester or prior semesters unless otherwise determined by the Office of Admissions.

Residency criteria, as paraphrased above, are determined by UA Board of Regents residency policy and regulations found at http://www.alaska.edu/bor/policy/05-10.pdf. For more information and applications, students should contact the Office of Admissions (http://www.uaf.edu/admissions).

Basic Student Fees

Basic Student Fees

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount (per semester unless otherwise indicated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASUAF</td>
<td>$42 (CTC-only $5)</td>
</tr>
<tr>
<td>Athletics</td>
<td>$10/credit to a maximum of $120</td>
</tr>
<tr>
<td>Course Fees</td>
<td>varies</td>
</tr>
<tr>
<td>Parking Permit</td>
<td></td>
</tr>
<tr>
<td>8 credits or fewer</td>
<td>$51</td>
</tr>
<tr>
<td>9 or more credits</td>
<td>$88</td>
</tr>
<tr>
<td>Annual permit</td>
<td>$153</td>
</tr>
<tr>
<td>Spring/summer</td>
<td>$153</td>
</tr>
<tr>
<td>Multivehicle</td>
<td>additional $10</td>
</tr>
<tr>
<td>Recreation Fee</td>
<td>$135 (CTC-only $75)</td>
</tr>
<tr>
<td>Student Health and Counseling Center</td>
<td></td>
</tr>
<tr>
<td>Fall or spring semester</td>
<td>$150</td>
</tr>
</tbody>
</table>
**PARKING PERMIT**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student permit (3 or more credits)</td>
<td>$100</td>
</tr>
<tr>
<td>Technology</td>
<td>$5/credit</td>
</tr>
<tr>
<td>3 or more credits</td>
<td>$22</td>
</tr>
<tr>
<td>UA Facilities</td>
<td>$6/credit</td>
</tr>
<tr>
<td>UA Network</td>
<td></td>
</tr>
<tr>
<td>4 percent of tuition</td>
<td>varies ($8-$42/credit)</td>
</tr>
<tr>
<td>Wood Center Student Life</td>
<td>$50 (CTC-only $45)</td>
</tr>
</tbody>
</table>

**Note:** All fees are subject to change.

**ASUAF**

**Cost:** $42 per semester. CTC-only students $5.

**Who pays:** All Fairbanks-area students (Fairbanks campus or Community and Technical College sites) enrolled in 3 or more credits.

**What’s covered:** The Associated Students of the University of Alaska Fairbanks represent student views and concerns to the university administration, board of regents and Alaska Legislature. The ASUAF fee also partially funds publication of the UAF student newspaper, the Sun Star; the student-managed ASUAF Concert Board; KSUA, the student radio station; and other media. Other services provided through ASUAF include a free half-hour attorney consultation, academic travel funding, subsidized student club activities, regular free coffee service, and much more. Contact ASUAF at 907-474-7355 or visit www.asuaf.org (http://www.asuaf.org).

**ATHLETICS**

**Cost:** $10 per credit hour (to a maximum of $120 per semester)

**Who pays:** All Fairbanks-area students (Fairbanks campus or Community and Technical College sites) enrolled in 3 or more credits.

**What’s covered:** The athletics fee provides admission to all home athletic competitions. Admission is guaranteed only until the start of each event. The fee excludes postseason competitions. For more information regarding event and ticket policies visit http://www.alaskananooks.com.

**COURSE FEES**

**Cost:** Varies

**Who pays:** Students enrolled in courses with special fees. See the class schedule for individual classes.

**What’s covered:** Some courses require special equipment, supplies or services and charge a materials fee in addition to tuition.

**PARKING PERMIT**

**Cost:** Single vehicle — $51 for 8 or fewer credits; $88 for 9 or more credits; $153 annual permit

**Who pays:** Students who park a vehicle at any on- or off-campus UA, UAF or Community and Technical College location are required to have a parking permit displayed on the vehicle at all times, including evenings.

**What’s covered:** Parking in permit-required and general-use lots/spaces at any on- or off-campus UA, UAF or Community and Technical College location in Fairbanks.

**How to order your permit:** Request your permit through UAF’s online parking system (http://www.uaf.edu/bursar/parkingservices). Select the type of parking permit(s) needed, your delivery option and payment method. You may instantly print a two-week temporary permit for use until your permit arrives in the mail or you pick it up.

**How to pay:** Complete your permit purchase at http://www.uaf.edu/bursar/parkingservices/. Payment options are MasterCard, Visa, Discover or “student account,” if you have added parking to your student account. You may also pay for the permit at the Bursar’s Office in Signers’ Hall with cash, check or money order.

**How to acquire permit:** Depending on the method chosen, you may pick up the permit at the location indicated at the time of purchase, or if the mail option was chosen, it will be mailed to you. Permits may always be picked up at the Bursar’s Office in Signers’ Hall. Bring your current state vehicle registration with you to ensure correct information for your file.

It is the responsibility of all students parking a vehicle on any UAF property (on or off campus) to be knowledgeable of UAF parking regulations, available online at http://www.uaf.edu/bursar/parkingservices/. For more information, call 474-7384 or email uaf-bursar@alaska.edu.

**RECREATION FEE**

**Cost:** $135 per semester; $75 for CTC-only students.

**Who pays:** All Fairbanks-area students (Fairbanks or UAF Community and Technical College sites) enrolled in 6 or more credits (eLearning classes do not count towards this total). Fairbanks-area students enrolled in 3-5 credits have the option of paying the recreation fee. Fairbanks-area students enrolled in 1-2 credits do not have the option of purchasing a membership at the recreation fee cost, but there are other membership options.

**What’s covered:** The recreation fee is a membership to the Student Recreation Center (SRC), Patty Ice, Patty Pool, Outdoor Adventures and Skiland (see the SRC for Skiland season pass receipt; only available for students enrolled in 6 or more credits on campus). The SRC is a comprehensive fitness facility with equipment, courts, track, group fitness, intramurals and a climbing wall. The Patty ice arena provides recreational ice skating sessions. The Patty pool provides lap swim sessions. Outdoor Adventures has discounted equipment rentals, trips and an outdoor rock/ice wall. Some extra programs have additional fees associated, consult DRAW staff for details. Anyone under the age of 18 using these facilities must be residents may not purchase the multivehicle option. Employees are not eligible to purchase parking permits at student rates.)
accompanied by a legal guardian whose minimum age is 21 unless they are a full-time UAF student. See www.uaf.edu/draw (http://www.uaf.edu/draw) or call 907-474-5886 for more information.

**STUDENT HEALTH AND COUNSELING CENTER**

**Cost:** $150 per semester; $100 summer/6 credits.

**Who pays:** Students enrolled in 6 or more in-person credits at Fairbanks, CTC, University Park and Hutchison campuses. eLearning & Distance Education courses are not counted towards the 6 credit threshold. Students taking eLearning & Distance Education courses may opt in to pay the fee if they are taking at least 6 credits total.

**What's covered:** Basic medical and counseling services at the Student Health and Counseling Center on the Fairbanks campus. See www.uaf.edu/chc/ (http://www.uaf.edu/chc) for more information.

**STUDENT SUSTAINABILITY**

**Cost:** $20 per semester.

**Who pays:** Students enrolled in 3 or more Fairbanks section credits (Fairbanks or UAF Community and Technical College sites).

**What's covered:** The student sustainability fee is a student-initiated fee that is invested in energy-efficiency programs and renewable energy projects at UAF.

**TECHNOLOGY**

**Cost:** $5 per credit hour (to a maximum of $60 per campus).

**Who pays:** All students.

**What's covered:** The fee remains at the campus at which it was collected and is used to support technology that enhances academics.

**TRANSPORTATION**

**Cost:** $22 per semester.

**Who pays:** All Fairbanks-area students (Fairbanks or UAF Community and Technical College sites) taking 3 credits or more per semester during fall or spring semesters.

**What's covered:** The transportation fee pays a portion of the costs of operating shuttle buses that provide transportation throughout campus and to various university facilities off campus, and ride borough buses for free.

**UA FACILITIES FEE**

**Cost:** $6 per credit.

**Who pays:** All undergraduate and graduate students, including those enrolled in eLearning or distance education courses.

**What's covered:** The UA facilities fee is assessed to all undergraduate and graduate students to address the capital reinvestment for university facilities and academic equipment. Capital reinvestment funds construction that modernizes university classrooms, laboratories, residence halls and other buildings so students have learning and living facilities that enhance the academic experience.

**UA NETWORK FEE**

**Cost:** 4 percent of tuition ($8-$42/credit).

**Who pays:** All students.

**What's covered:** The UA network charge covers rapidly rising costs, especially in the maintenance and enhancement of the universitywide technology infrastructure. The 4 percent network charge is applied on a per credit hour basis (rounded to the nearest dollar) to tuition, nonresident surcharges if applicable, and fees in lieu of tuition for credit and noncredit courses. The minimum network charge per course is $8.

**WOOD CENTER STUDENT LIFE**

**Cost:** $50 per semester; CTC-only students $45.

**Who pays:** All Fairbanks-area students (Fairbanks campus or UAF Community and Technical College sites) enrolled in 3 credits or more. Students taking courses outside the Fairbanks area are not required to pay the fee.

**What's covered:** The Wood Center student life fee supports Nanook traditions such as Starvation Gulch, Winter Carnival and SpringFest as well as student activities and student life programs.

**Other Fees**

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Per Use Unless Otherwise Indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application for Admission</td>
<td>$40</td>
</tr>
<tr>
<td>Certificate or Associate degree</td>
<td></td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>$50 ($75 if late)</td>
</tr>
<tr>
<td>Graduate</td>
<td>$75 ($100 if late)</td>
</tr>
<tr>
<td>Application for Graduation</td>
<td>$50 ($80 if late)</td>
</tr>
<tr>
<td>Campus Housing</td>
<td></td>
</tr>
<tr>
<td>Residence halls (per semester)</td>
<td>$2,122-$2,850^1</td>
</tr>
<tr>
<td>Fairbanks campus family housing (per month)</td>
<td>$782-$1,681^2</td>
</tr>
<tr>
<td>Kuskokwim Campus housing</td>
<td>Contact campus</td>
</tr>
<tr>
<td>Credit by Examination</td>
<td>$40/credit</td>
</tr>
<tr>
<td>Credit Card Transaction</td>
<td>2.85 percent ($3 minimum)</td>
</tr>
<tr>
<td>Credit for Prior Learning</td>
<td>$50 plus $10/credit</td>
</tr>
<tr>
<td>Duplicate Tuition/Fees Receipt</td>
<td>$5/copy</td>
</tr>
<tr>
<td>eLearning &amp; Distance Education</td>
<td>$25/credit</td>
</tr>
<tr>
<td>Graduate Student Reinstatement</td>
<td>$50</td>
</tr>
<tr>
<td>Late Add/Late Registration</td>
<td>$50</td>
</tr>
<tr>
<td>Late Payment Fees</td>
<td>$50; $125, $175</td>
</tr>
<tr>
<td>Late Placement Test or Guidance Test</td>
<td>$5</td>
</tr>
<tr>
<td>Meal Plans (per semester)</td>
<td>$305-$2,365</td>
</tr>
<tr>
<td>New Student Orientation (Fairbanks area)</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>$115</td>
</tr>
<tr>
<td>Spring</td>
<td>$35</td>
</tr>
<tr>
<td>Payment Plan</td>
<td>$65-$90</td>
</tr>
<tr>
<td>Post Office Box</td>
<td>$55</td>
</tr>
</tbody>
</table>
Summer Only $30

Records Duplication $0.25/page

Reinstatement Fee $100

Returned Check Fee $30

Textbooks (approximate) $250-$1,100/semester

Transcripts
- Electronic, $12; paper, $15 $12-$15
- Expedited paper $30

UAF SOM and CEM Tuition Surcharge 20 percent of tuition ($42-$98/credit)

1 Plus one-time application fee of $40 and a refundable $315 damage deposit
2 Plus one-time application fee of $75 and a refundable $600 damage deposit

Note: All fees are subject to change

APPLICATION FOR ADMISSION
Cost: $40-$100

Who pays: Applicants to certificate and associate degree programs should include $40 with their admissions application. Applicants to bachelor’s programs should include $50 ($75 if late), and applicants to graduate programs, $75 ($100 if late).

What’s covered: Assessment and processing of prospective student applications

APPLICATION FOR GRADUATION
Cost: $50 ($80 if late)

Who pays: Students planning to graduate in a given semester must apply for graduation. Early applications are encouraged and can be submitted the semester before expected graduation. Application deadlines are Oct. 15 for fall; Feb. 15 for spring and June 15 for summer graduation.

What’s covered: Credit check, degree requirement audit and certification of eligibility to graduate

CAMPUS HOUSING

Fairbanks Campus Single-Student Housing
Cost: $2,122-$2,850 per semester plus $355 deposit ($40 nonrefundable application fee; $315 refundable damage deposit)

What’s covered: See Housing (p. 70) page for details of specific housing options.

Fairbanks Campus Family Housing
Cost: $782-$1,681 per month plus $75 nonrefundable application fee, $600 damage deposit ($300 due when you are assigned a housing unit; $300 due at check-in)

How to apply: Send a completed application and application fee to the Department of Residence Life. Applications are available online. Room rent and meal plan fees, along with all other fees, are due in full by fee payment deadline. Information about Residence Life is available at 907-474-7247, uaf-housing@alaska.edu or www.uaf.edu/reslife/ (http://www.uaf.edu/reslife).

Residence Hall Phone Line
Cost: $120 per semester (for an optional shared land line connection in your dorm room; bring your own phone/answering machine. You are welcome to bring your own cell phone.)

Kuskokwim Campus Housing
For information about campus housing at the Kuskokwim Campus in Bethel, visit http://www.bethel.uaf.edu or call 907-543-4562.

CREDIT BY EXAMINATION
Cost: $40 per credit hour

Who pays: Students using the credit-by-exam option for earning UAF course credit

What’s covered: The fee pays for coordinating the exam or other evaluation requirements between student and professor, grade recording and transcription.

CREDIT CARD TRANSACTION FEE
Cost: 2.85 percent ($3 minimum)

Who pays: Anyone making credit or debit card payments via UAOnline. Note: credit and debit card payments are not accepted in person, by mail or over the phone.

What’s covered: Fees charged by credit card companies. Note: the university does not receive any of this fee.

CREDIT FOR PRIOR LEARNING
Cost: $50 fee payment plus $10/credit hour for credits earned

Who pays: Students using the credit-for-prior-learning option to earn UAF course credits

What’s covered: The fee pays for the portfolio or license/certificate review by faculty evaluation committee. If credit is awarded, the fee per credit hour earned pays for grade recording and transcription.

ELEARNING & DISTANCE EDUCATION
Cost: $25 per credit hour

Who pays: Students enrolled in an eLearning & Distance Education course

What’s covered: The fee pays for academic and advising support, online student resources, exam proctoring services, technology upgrades, and enhancements to course delivery.

GRADUATE STUDENT REINSTATEMENT
Cost: $50

Who pays: Graduate students who do not meet registration requirements and fail to file an approved leave of absence may request reinstatement from the dean of the Graduate School and will be charged $50.

What’s covered: Reinstatement processing

LATE ADD/LATE REGISTRATION
Cost: $50

Who pays: Students given permission to add a class after the last day to pay tuition and fees will be charged a late registration fee of
$50 that must be paid within five business days. This includes drop/add (swap) courses. No late fee will be charged when:

- you add a late-start course during the regular registration period for that course, or
- you are moved into a class for which you were waitlisted, or
- you change from one section to a different section of the same course, or
- you add graduate thesis or research credits, or
- you add a course to replace a canceled course in which you were previously enrolled, or
- you are moved to a lower or higher level of a course (e.g., MATH F151X to DEVM F105) due to instructor’s recommendation.

This fee is refundable only if all classes for which you have registered are canceled. See the Registration Guide (http://www.uaf.edu/register) for the procedure for adding a class.

What's covered: All materials, sessions, general entertainment and meals not included in student meal plans

**PAYMENT PLAN**
Cost: $65-$90 depending on when you sign up. Discount only applies to online enrollment via UAOnline.

Who pays: Students unable to pay all tuition and fees at the beginning of a semester

What's covered: Budgeting by distributing the costs of tuition and fees across two or more payment dates. See http://www.uaf.edu/bursar/ for more information.

**PLACEMENT TEST FEE**
Cost: $25

Who pays: Undergraduate students taking the ALEKS PPL mathematics placement assessment

What's covered: Mathematics course placement assessment and six-week prep and learning module to place, practice, improve and enroll. Up to four retests may be taken.

**REINSTATMENT FEE**
Cost: $100

Who pays: Students dropped from classes due to nonpayment will be charged $100 to have classes reinstated

What's covered: Reinstatement processing
and submit an enrollment form and payment for the current semester, must be paid before you can re-enroll. If you owe money to the university charges unpaid at the end of the previous semester are also due and rent, meal plan costs, student activity fees, health fees and deposits. Any if you are taking classes from multiple campuses. This includes room fee payment deadline. Please note that the payment due dates may vary and fees are paid or other payment arrangements have been made by the Students are not considered registered for any classes until all tuition

Paying Tuition and Fees
Students are not considered registered for any classes until all tuition and fees are paid or other payment arrangements have been made by the fee payment deadline. Please note that the payment due dates may vary if you are taking classes from multiple campuses. This includes room rent, meal plan costs, student activity fees, health fees and deposits. Any charges unpaid at the end of the previous semester are also due and must be paid before you can re-enroll. If you owe money to the university and submit an enrollment form and payment for the current semester, you will not be enrolled in your classes; instead the payment will be applied toward your outstanding balance.

Other than tuition and fees, which are due according to every semester’s payment schedule, any charges owed to the university are due within 30 days.

A $30 charge and a hold will be placed on your account if your check is returned. This will prevent you from registering, viewing grades, receiving transcripts and graduation activity.

CONSEQUENCES OF NOT PAYING
Failure to pay in full or make other payment arrangements by the fee payment deadline may result in cancellation of your class schedule. UAF may withhold transcripts, grades and other services, and cancel meal plans and housing, if you do not pay your financial obligations. If the university takes such action, you will still be responsible for your account balance in full.

Registration may be withheld from any student who is delinquent in paying any amount due to the university. The registration process is not complete until the student has paid all fees and charges due. UAF may drop you from your courses after the fee payment deadline if you owe a balance to the university. A $100 reinstatement fee will be charged to re-enroll in any dropped courses.

FAILURE TO MEET FINANCIAL OBLIGATIONS
University policy requires a financial hold be placed on your student account if you fail to meet your financial obligations. The hold will prevent any registration, transcript or graduation activity.

Past due accounts will be sent to a collection agency. Interest, late fees and/or collection costs will be added to your account. Past due balances may be reported to a local credit bureau. The university is authorized to garnish Alaska Permanent Fund Dividends for payment of past due accounts.

TUITION WAIVERS
- **Senior Citizen Tuition Waiver**
  UA Board of Regents policy waives regular tuition for Alaska residents at the age of eligibility for full Social Security retirement benefits. You are eligible to use the senior citizen tuition waiver and enroll in UAF courses if:
  - you are a permanent resident of Alaska;
  - you are age-eligible to receive full Social Security retirement benefits; and
  - there is space (i.e., no waitlist) in the class or classes you want.

If you are using a senior tuition waiver, you may not register until the first day of instruction for each class. You must meet both age and residency requirements by one of the following dates to be eligible for the corresponding semester: Sept. 1 for fall; Jan. 1 for spring; May 1 for summer. Reimbursements will not be made to senior citizens who pay for a course and then request a waiver.

- **Employee Tuition Waiver**
  Employee tuition waivers pay only for tuition. Tuition waiver forms must be turned in by the fee payment deadline. The employee is responsible for all other fees. Employees who pay for a course and later become eligible for a waiver will not be reimbursed. Late fees and payment deadlines apply. More information is available at [http://www.uaf.edu/bursar/](http://www.uaf.edu/bursar/).
Refunds

TUITION AND FEES

Students who withdraw from courses or cancel enrollment must submit a completed official withdrawal form to the Office of the Registrar. UAF may fully or partially refund undergraduate, graduate and nonresident tuition and fees. The following conditions apply:

1. If UAF cancels a course, students’ tuition and fees will be refunded in full.
2. If a student formally withdraws from a course, UAF will make refunds according to the date of the withdrawal.
   a. Students have until the third Friday of the semester to drop classes and receive a 100 percent refund. The parking decal fee will be refunded in full if the student returns the parking decal at the time of withdrawal.
   b. If a student withdraws from a class and adds another on the same day through the third Friday of the semester, UAF will exchange tuition.
      NOTE: If the exchange is uneven — e.g., lower level to upper level, or 3 credits to 4 credits — tuition and any fees owed are due the same day.
   c. If withdrawal is after the third Friday of the semester, no refund or exchange of tuition is available.

• Courses Meeting Four Weeks or More But Less Than a Semester
  a. If a student withdraws within five business days of the first class meeting, UAF will refund 100 percent of tuition and fees.
  b. If a student withdraws on or after the sixth business day after the first class meeting, no refund or exchange of tuition is available.

• Courses Meeting Less Than Four Weeks
  If a student withdraws before the first day of class, UAF will refund 100 percent of tuition and fees. No refund or exchange of tuition is available to students who withdraw on or after the first day of class.

REFUND PROCESSING

Financial aid will be disbursed to student accounts 10 days before the first day of class, and the Bursar’s Office will begin processing refunds at that time. Contact the Bursar’s Office for an advance if you need your funds for books and supplies. Refund processing is automatic for students who officially drop courses by the published refund deadlines. Remember to return parking permits if you drop during the 100 percent refund time.

All refunds are processed electronically or by mail. The Bursar’s Office does not issue refund checks for amounts less than $10. It is your responsibility to check your account and contact the Bursar’s Office to receive your refund as cash or to apply it to your PolarExpress card as a nonrefundable payment.

If you paid tuition and fees by credit card only, the card will be credited up to the amount charged.

If your tuition was paid through external sources such as financial aid, federal loans, scholarships or grants, you will receive your refund as a check sent to your mailing address of record or direct deposited in your bank account.

Once processed by the Bursar’s Office, direct deposit takes three to five business days to disburse to your bank account.

Your refund is subject to federal regulations. If you receive a refund due to dropped classes or a total withdrawal, you may no longer qualify to receive scholarships or financial aid. In that case, the funds may be returned to the lender or grantor pursuant to all applicable rules and regulations.

If you paid by cash or check, a refund check will be sent to your mailing address of record or direct deposited in your bank account. If you notify the Bursar’s Office that you have not received the check due to an incorrect address, a fee of $18.50 will be charged for all checks reissued due to a stop-pay request by the student. Please be sure we have your current mailing address.

If you paid your tuition and fees by check, refund processing will begin after your check has cleared the bank.

Any balance owed to the university will be deducted from your refund.

Students who drop during the 100 percent refund period and want to maintain health insurance coverage should contact the Student Health and Counseling Center at 474-7043.

DIRECT DEPOSIT OF REFUNDS

Enrolling in direct deposit allows your refunds to be electronically deposited into your bank account. It’s simple, safe and convenient. Enrollment is available through our secure self-service website. Sign up for direct deposit of your refund through UAOnline (http://uaonline.alaska.edu) by following these steps:

• At the "Student Services & Accounting Information" menu select the “Direct Deposit Enrollment” link.
  a. Select "1st time setup of direct deposit"
  b. Select the account type
  • Enter the bank routing code
  • Enter account number
  • Re-enter account number
  • Select "Submit"

EXCEPTION TO POLICY: APPEAL FOR REFUND OF TUITION

Appeals for refund of tuition are exceptions to policy and are only approved in events that are unanticipated and unavoidable. Approval is not automatic, and you need to provide documented evidence to support your request (physician’s note, letters of support from instructors, etc.). Acceptable unanticipated and unavoidable reasons may include:

1. death in immediate family;
2. serious illness or injury of student or immediate family member; and
3. factors outside of the student’s control (e.g., fire, flood).

Work-related issues, personal hardships, changing your mind about college, poor academic performance, disciplinary withdrawal, not receiving expected financial assistance or failure to read UAF’s published documents are considered to be the result of personal choices and actions and will not be considered.

Appeals for refund of tuition must be submitted within 30 class days after the beginning of the next regular semester. Forms for an appeal for refund of tuition are available online at http://www.uaf.edu/bursar/forms/, through the Bursar’s Office in Signers’ Hall on the Fairbanks campus or at CTC. Once received, the appeal will be evaluated by a campuswide committee which will return a decision to the student.
The decision of the committee is final, and a student who files a written appeal under these procedures shall be expected to abide by the final disposition of the review, as provided, and may not seek further appeal of the matter under any other procedure within the university. Submission of appeals and appropriate documentation after published deadlines will not be considered. Contact the Bursar’s Office for more information.

**HOUSING**

Students who move off campus or withdraw from the university will receive room refunds according to the schedule on their housing agreement.

Any refund of room charges will be based upon the housing agreement.

**MEALS**

Please refer to your meal plan agreement for specific information about meal plan refunds.

**Where To Get More Information**

**Office of the Bursar**

University of Alaska Fairbanks

130 Signers’ Hall

P.O. Box 757640

Fairbanks, AK 99775-7640

Email: uaf-bursar@alaska.edu

Online: http://www.uaf.edu/bursar/

Telephone: 907-474-7384

Fax: 907-474-5898

**Financial Aid**

**What Is Financial Aid**

Most students will need financial aid to help pay for the cost of attending college. Financial aid in the form of scholarships, grants, loans and employment is available at UAF to eligible students who need assistance to attend school.

Financial aid can be used to help pay for tuition, fees, books, supplies and living expenses such as room and board.

The Financial Aid Office provides counseling and information to students and parents, and administers a comprehensive program of financial assistance. Specific information regarding financial aid programs at UAF is at http://www.uaf.edu/finaid/. The Financial Aid Office is in 107 Eielson. Contact Financial Aid at 907-474-7256, toll free at 888-474-7256 or at uaf-financialaid@alaska.edu.

**Who Receives Financial Aid**

To receive financial aid you must:

1. Be admitted to a financial aid-eligible certificate or degree program at UAF;
2. Be a U.S. citizen or eligible noncitizen (F-1 and J-1 students are not eligible for state or federal financial aid, but may apply for University of Alaska Foundation or UAF privately funded scholarships, and graduate fellowships or assistantships);
3. Be registered with Selective Service if you are a male 18 or more years old;
4. Have a valid social security number;
5. Be making satisfactory academic progress as defined by the Financial Aid Office policy (policies and forms are at http://www.uaf.edu/finaid/);
6. Not be in default on any federal education loan and not owe a refund because of overpayment of a previous federal grant or loan at any college or university;
7. Have earned a high school diploma, GED or equivalent.

**How to Apply for Financial Aid**

The forms to apply for federal, state and UAF financial aid programs are available at the Financial Aid Office or at http://www.uaf.edu/finaid/.

All students must complete the Free Application for Federal Student Aid to be considered for grants, scholarships, tuition waivers, loans and work study.

FAFSA forms may be completed at http://www.fafsa.ed.gov. The earliest date students may begin completing the form is Oct. 1.

The priority application deadline for UAF is Feb. 15. If you miss the deadline, you may still apply for financial aid, but you might not be eligible for institutional scholarships or some state/federal grants.

**Costs of Attending UAF**

The information in the Estimated UAF Living Expenses (p. 65) table for a typical full-time undergraduate student for the school year will help you estimate the total cost of attending UAF:

**ESTIMATED UAF LIVING EXPENSES**

<table>
<thead>
<tr>
<th></th>
<th>Single student living alone off campus</th>
<th>Single student living in UAF residence hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and fees¹</td>
<td>$8,668</td>
<td>$8,668</td>
</tr>
<tr>
<td>Books, supplies</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Room and board²</td>
<td>$12,050</td>
<td>$8,974</td>
</tr>
<tr>
<td>Transportation</td>
<td>$2,000</td>
<td>$400</td>
</tr>
<tr>
<td>Misc./personal</td>
<td>$2,250</td>
<td>$2,250</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$26,978</strong></td>
<td><strong>$22,302</strong></td>
</tr>
</tbody>
</table>

¹ Estimate includes Alaska resident tuition costs for freshmen/sophomores. Includes Wood Center student life, student government, technology, transportation, UA facilities, UA network, athletics, recreation and health center fees. Does not include health insurance, parking, travel or special costs associated with international or exchange students. Add $16,808 for nonresident tuition. Costs are subject to change.

² Double room and meal plan

Standard budgets do not always fit everyone. Financial Aid staff will try to provide methods of covering unusual expenses such as medical bills, special child care or emergency items. Since eligibility is based on prior income, you may request a review of your eligibility if your income changes from loss of job, divorce, death or disability.

**How Eligibility Is Determined**

After the FAFSA is filed, the Financial Aid Office receives a student aid report from the U.S. Department of Education. The information on this form is used to determine a student’s eligibility for financial aid at UAF.

Once the office has received this report, students will receive an email either requesting more information (such as copies of income tax forms,
Scholarships, Grants and Tuition Waivers

Grants are usually based on financial need, whereas scholarship awards are based on academic achievement as well as financial need. These types of aid do not have to be repaid. Most grants and scholarships are designed for undergraduate students.

- **University of Alaska Scholars Program**
  UA Scholars are exceptional graduates of Alaska high schools who are offered a unique opportunity to attend the University of Alaska with an $12,000 scholarship paid over eight semesters at $1,500/semester. The UA Scholars Program encourages Alaska’s high school graduates to pursue their advanced education in the 49th state. Alaska high schools designate the top 10 percent of the junior class at the end of their junior year for the UA Scholars Award. UA Scholars may use their awards at any of the UA system campuses. The award may also be applied to costs of qualified student exchange programs. Contact the UA Scholars coordinator at the Office of Admissions at 907-474-7500 or 800-478-1823.

- **Chancellor’s Scholarship**
  This award is available to high school students transitioning to college for the first time. A UAF application for admission and scholarship application must be received by Feb. 15 to be considered for this award. You may apply online at http://alaska.academicworks.com. For more information contact the Office of Admissions at 907-474-7500 or 800-478-1823.

- **Alaska Performance Scholarship**
  The Alaska Performance Scholarship is available to Alaska residents who graduated from an Alaska high school (public, private or home school) in 2011 or later. Students must complete high school, achieve a high school GPA of at least 2.5, earn a minimum score on a college or career readiness test, enroll at least half time, remain in good standing, and have qualifying education costs remaining after using all other nonloan aid. Students can receive up to eight semesters of award with three maximum annual award levels of up to $2,378, $3,566 and $4,755. To qualify, students must complete the FAFSA as soon as possible. For more information visit http://acpe.alaska.gov/Grants_Scholarships/Alaska_Performance_Scholarship or call 800-441-2962.

- **Human Achievement Award**
  This service award is given to graduating high school seniors and transfer students who demonstrate a record of volunteerism, community service and a commitment to high academic standards. A UAF application for admission, including the scholarship supplement form that is part of the application, must be received by Feb. 15 to be considered for this award. You may apply online at http://alaska.academicworks.com. For more information contact the Office of Admissions at 907-474-7500 or 800-478-1823.

- **UAF Privately Funded Scholarships**
  Several hundred privately funded scholarships are available to all prospective and current students in a variety of academic majors. You may apply online at http://alaska.academicworks.com. New and prospective students must also apply for admission to UAF to be considered for scholarships. For more information contact the Office of Financial Aid at 907-474-5372 or 888-474-7256.

- **University of Alaska Foundation Scholarships**
  Scholarships are available for students attending any campus in the UA system. Applications are submitted at http://alaska.academicworks.com. The deadline is Feb. 15. For information telephone 907-474-7687 or visit http://www.alaska.edu/foundation/.

- **Army ROTC Scholarships**
  The U.S. Army awards four-year scholarships to high school students based on nationwide competitions. Students may use these scholarships to attend the university of their choice, provided that university is also host to an Army ROTC program. The UAF Army ROTC program supports campus-based competition for two-, three- and four-year scholarships for qualified UAF students. These scholarships may be used for undergraduate or graduate programs. Army ROTC scholarships pay UAF tuition and mandatory fees, $900 annually for books and supplies, and a monthly stipend for living expenses ranging from $300-$500 depending on the length of the scholarship.
  For more information about the Army scholarship program, eligibility requirements and the application process, contact the Department of Military Science at 907-474-6852 or email uaf-army-rotc-dept@alaska.edu.

- **Bureau of Indian Affairs and Native Corporation Scholarships**
  The federal Bureau of Indian Affairs offers grants to undergraduate full-time students. Applicants must be at least one-quarter American Indian or Alaska Native. These grants supplement other financial aid and are based on financial need. Grants range from $50-$3,000 or more each year. The average grant at UAF is $1,600. More information on BIA grants can be obtained from the BIA Regional Office, 1675 C Street, Anchorage, AK, 99501-5198, or by telephone at 907-271-4115.
  Some regional and village corporations provide scholarships to shareholders. Contact your local corporation for details on eligibility and application procedures.

- **University of Alaska Grant**
  This need-based tuition assistance grant is awarded to eligible students who have completed fewer than 60 credits toward an undergraduate degree. Applicants must complete the Free Application for Federal Student Aid by April 15 and be an Alaska resident, admitted to a degree program, enrolled in at least 6 credits and maintaining satisfactory academic progress. Award amounts vary and are capped at a maximum of $1,000.

- **Pell Grant**
  The federal Pell Grant is a need-based grant available to undergraduate students to help pay college costs. Since this grant is based on financial need, students must complete the Free Application for Federal Student Aid. A federal processor will send applicants a student aid report indicating whether they qualify. Federal Pell Grants award up to $5,920 for the 2017-2018 academic year.

- **Federal Supplemental Educational Opportunity Grant**
  This grant is for exceptionally needy undergraduate students. Award amounts range from $600-$1,000 each year.

- **Student Support Services**
  Student Support Services offers scholarships to qualified program participants who have made use of the SSS academic support services and are on a limited income. To be eligible to participate, you must be a first generation college student (neither parent has a college degree), have a documented learning or physical disability, or
qualify as a low-income student. Visit http://www.uaf.edu/sss/ for more information.

- **Alaska Education Grant**
The AlaskAdvantage need-based grant is awarded to Alaska residents attending Alaska institutions. Priority is given to students pursuing degrees in Alaska workforce priority programs (such as allied health, social and community services, or teaching) or who have an ACT score of 25 or higher or SAT score of 1180 or higher. Part-time awards range from $500-$1,000 per academic year. Full-time awards range from $1,000-$4,000 per academic year.

- **Western Undergraduate Exchange Award**
UAF participates in the Western Undergraduate Exchange administered by the Western Interstate Commission for Higher Education. Only new undergraduate degree applicants claiming residency in Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington or Wyoming are considered for a WUE award that reduces nonresident tuition to 1.5 times the resident tuition rate. WUE award applicants must submit an application for admission and clearly mark their interest in WUE on the form. Admission is restricted to an approved list of degree programs. Priority deadline for reviewing WUE applications is Feb. 15. For more information contact the Office of Admissions at 800-478-1823, 907-474-7500, or http://www.uaf.edu/admissions/.

**Note:** Students attending any campus of the University of Alaska system under the Western Undergraduate Exchange program are assumed to be receiving the benefit of reduced tuition because of their residency in a partner state. Therefore, time spent in WUE does not count toward the time required to establish residency in Alaska for tuition purposes. If students end their participation in WUE, they could begin establishing residency for tuition purposes as set forth in the resident and nonresident tuition policy (p. 58).

### Graduate Assistantships
You must be admitted to a graduate program to receive an assistantship. Research and teaching assistantships are awarded to qualified graduate students by each department or program. For application information, contact the department or program directly. For more information, see How to Earn a Graduate Degree (p. 254).

Fellowships are available through the University of Alaska Foundation, the Graduate School and private organizations. A limited number of these awards are granted each year, and the amounts vary. For information, contact the UA Foundation, 907-474-7687, or the Graduate School, 907-474-7464, or visit http://www.uaf.edu/gradsch/.

### Loans
Loans represent a major source of assistance as you try to meet the full costs of your education. Educational loans generally have long-term repayment schedules and offer low interest rates. They often have provisions for deferring payments and may offer more benefits related to financial need.

Any student who borrows money for college should understand the specific conditions and requirements regarding disbursements, deferments and repayment options. Students who fail to meet the conditions of the satisfactory academic progress policy may be denied all federal aid.

UAF participates in the Federal Student Loan Program. The Federal Stafford Loan provides loans from the federal government. The program offers subsidized and unsubsidized loans. Subsidized loans are for students who have financial need; the government makes interest payments on the loan while the student is in school, in grace period or in deferment. Unsubsidized loans are those for which interest accrues while in school. A student may receive subsidized federal loans for up to 150 percent of his/her program’s published length. If a student exceeds this time frame, his/her loans will lose the interest subsidy and interest will begin to accrue on those loans. Loan repayment calculations are available at http://www.finaid.org.

Students must be enrolled in at least 6 credits to qualify for a state or federal loan. Yearly limits for dependent students are $5,500 for first-year students, $6,500 for second-year students and $7,500 for upper-level undergraduates. Independent students may borrow, including the subsidized federal loan, up to $9,500 as first-year students, $10,500 as second-year students and $12,500 as third- or fourth-year students. Graduate students may borrow $20,500. The interest rate varies annually and is capped at 8.25 percent.

The Federal Parent Loan for Undergraduate Students is a program for parents of dependent students. The cost of attending UAF determines the annual loan limits. A variable interest rate or finance charge, not to exceed 9 percent, is determined each year for the federal PLUS programs.

The Alaska Commission on Postsecondary Education offers both federal and state loan programs. These loans are available to all students attending UAF. Through its federal component, AlaskAdvantage offers Stafford (subsidized and unsubsidized) and PLUS loans. State loans include the Alaska Supplemental Education Loan, the Family Education Loan and the Winn Brindle Scholarship Loan.

Students seeking an Alaska Supplemental Education Loan, or ASEL, must apply using the Free Application for Federal Student Aid and the ASEL Master Promissory Note.

The ASEL loan can be used as a supplement to any other aid, provided the total amount of aid does not exceed a student’s calculated cost of attendance. ASEL approval also requires a student to have good credit.

Undergraduates may borrow up to $14,000 and graduate students up to $15,000, depending on enrollment. Repayment begins no later than six months after the borrower stops attending school at least half time. The interest rate is variable and is made public every July. Interest is charged from the day of disbursement.

The Alaska Family Education Loan Program allows the student’s family to share the cost of the student’s education. A family member can borrow up to $14,000 for an undergraduate and up to $15,000 for a graduate student. The interest rate is 5 percent, and the borrower begins repayment within 60 days of the final disbursement.

The Winn Brindle Scholarship loan can be used only for specific fields of study. For information, please contact the Alaska Commission on Postsecondary Education, 3030 Vintage Blvd., Juneau, AK 99801, 800-441-2962 or http://www.state.ak.us/acpe/.

Applicants must apply each year. Applications are available for all Alaska loan programs via the ACPE website or through their offices. UAF receives ACPE loan disbursements via electronic funds transfer. Loans are processed within seven to 10 days from time of receipt at ACPE offices in Juneau or Anchorage and can be disbursed to a student’s UAF account within two days of receipt by the Financial Aid Office.

Advance of funding (previously known as a textbook loan) may be available to students with enough certified financial aid available to cover
Financial Aid

all semester expenses and the requested advance of funding. Financial aid must be verified and guaranteed before an advance will be issued. In order to obtain an advance of funding, applicants must provide a textbook list, verified financial aid and a completed and signed advance of funding form. A $10 service charge is assessed and due when the advance of funding form is submitted. Applications and more information are available at the UAF Bursar’s Office.

**Student Employment**

Campus jobs help many UAF students pay college costs. Many student positions are available across UAF campuses, as well as the University of Alaska statewide system offices in Fairbanks. More than 1,000 students are employed in these jobs. Full-time student status is not required unless specified by a department. However, students who are less than full time are subject to FICA withholding, and departments that hire part-time student employees are subject to the applicable benefit rate charge.

Student employees may work up to 20 hours each week while classes are in session and up to 40 hours when classes are not in session. Pay rates are based on the job classification. The average pay varies from $300-$500 each month. Since there is no “pool” for workers, students apply directly to the departments with position vacancies. Job announcements and information on how to apply for positions are available from Career Services, 510 Gruening, 907-474-7596, or from Human Resources, Administrative Services Center, 907-474-7700, or at http://alaska.edu/jobs/.

The Federal Work Study program provides jobs for graduate and undergraduate students with financial need. Job placement and working conditions are similar to regular student employment. To qualify for FWS, students must be eligible for federal financial aid as determined based on information provided on the required FAFSA form.

**Veterans’ Services**

The UAF Financial Aid and Veterans’ Services offices advise and monitor the educational progress and status of veterans who attend UAF using VA educational benefits. They also help veterans, service members and eligible dependents with the paperwork needed to begin and continue certification under the various GI Bill benefits. If you qualify and wish to use your benefits, you must be fully admitted to UAF and in a state-approved degree or certificate program. A complete list of benefit programs is available at http://www.uaf.edu/veterans/va-educational-benefits/. If you are unsure whether you are entitled to GI Bill benefits, contact the Department of Veterans Affairs in Muskogee, Oklahoma, at 888-442-4551 (888 GI BILL 1) or http://www.gibill.va.gov.

Specific questions regarding vocational rehabilitation should be directed to the Fairbanks Vet Center, 540 Fourth Ave., Suite 100, Fairbanks, AK 99701, or call 907-456-4238.

Because the Department of Veterans Affairs processes benefit payments as a reimbursement, you should initiate your VA paperwork 60-90 days before your classes start. You can apply for veteran benefits online at https://vabenefits.vba.va.gov/vonapp/main.asp. You can request certification for your UAF VA educational benefits at http://www.uaf.edu/veterans/forms/, or visit our office at 107 Eielson, call 907-474-6391, toll free at 888-474-7256 or email uaf-financialaid@alaska.edu.

**Remaining Eligible for Aid**

Students receiving financial aid are required to maintain satisfactory academic progress. Undergraduate students must satisfactorily complete a minimum of 67 percent of total credits attempted each year and have a cumulative grade point average of 2.00 (3.00 for graduate students).

Students may appeal the suspension of aid. Appeals must be in writing and must state the reasons for failure to maintain satisfactory standards of progress, as well as the steps the student will take to meet those standards in the future. Appeals should be directed to the Financial Aid Office, which will determine if the requirements for satisfactory academic progress will be waived. Academic progress requirements are subject to changes in federal or state law and institutional policy. A complete description is available is available at the Financial Aid Office or at http://www.uaf.edu/finaid/.

**Payment to the Student**

Disbursement of financial aid is usually in equal amounts. Students are given half the total award at the beginning of each semester. Tuition, fees and all other amounts due to UAF at the time financial aid is released to the student must be paid before the balance of aid is released to the student.

All financial aid checks as well as checks from outside organizations (such as Native corporations, clubs, etc.) are initially credited to the student’s account to pay for any debt owed to the university. Any balance remaining is refunded to the student in accordance with the university’s refund policy. Students who receive federal financial aid and totally withdraw from classes during a semester may have to pay back a portion of the federal financial aid received for that semester. The amount to be repaid is based on the number of class days attended before withdrawal compared to the total days in the semester and amount of federal aid received. If the withdrawing student is entitled to a refund of tuition and fee charges, all or part of the refund may be returned to the federal financial aid programs. The amount of a refund, repayment or return of federal financial aid is based on U.S. Department of Education regulations concerning return of federal financial aid. Any refund or repayment calculation exceeding the amount of refund determined by university policy will be charged to the student. Financial aid recipients are strongly encouraged to confirm the amount of any personal liability before processing a total withdrawal from classes.

**Important Financial Aid Dates**

- **Jan. 1** Apply for federal aid with the Free Application for Federal Financial Aid. It is best to apply well before the time you will need the financial aid.
- **February**
  - Apply for admission to UAF. Financial aid cannot be processed for students who have not been admitted to a UAF degree or certificate program.
- **Feb. 15** UAF scholarship application due. This application includes three short essays which may be revised at any time, so applicants should start early. Apply at http://alaska.academicworks.com.
- **May to July**
  - Federal student loan borrowers should complete federal loan promissory note and entrance counseling at http://www.studentloans.gov. Processing time is approximately one week. If sent to UAF in time, loans will be disbursed 10 days before the first day of class each semester.
  - **June 1 for fall; Oct. 15 for spring**
Deadline for admission to graduate programs, with all supporting documentation, transcripts and test scores.

• July 1
  Deadline for undergraduate admission to UAF for the fall semester. This is an absolute MUST. UAF cannot process financial aid for students who have not been admitted.

Rights and Responsibilities of Accepting Financial Aid

As a financial aid recipient at UAF, you have the right to:

1. Know what financial programs are available to you.
2. Know how to apply, how eligibility is determined and what terms and conditions are related to your aid.
3. Know how the university determines whether you are making satisfactory academic progress toward your degree and what happens if you are not making such progress.
4. Request an explanation of your financial aid package, including what portion is gift and what portion must be repaid and the terms of repayment.
5. Know the costs of attending UAF and the refund policy for students who withdraw.

For continued receipt of financial aid you must:

1. Complete and file all financial aid forms accurately and on time.
2. Read and understand all documents you sign. You should also keep copies for your records.
3. Know the limits and conditions of financial aid programs.
4. Notify the Financial Aid Office of any change of address, name, marital status, attendance status or receipt of additional financial awards.

Where to Get More Information

Office of Financial Aid
University of Alaska Fairbanks
107 Eielson Building
P.O. Box 756360
Fairbanks, AK 99775-6360
Email: uaf-financialaid@alaska.edu
Online: http://www.uaf.edu/finaid/
Telephone: 907-474-7256
Toll free: 888-474-7256
Housing

Single-Student Housing

Your educational experience at UAF will be one of the great adventures of your life. The Department of Residence Life can be a vital part of that adventure through programs that give you a comfortable, energetic environment in which to live and learn. The community fosters close friendships and academic achievement, helps you develop individual leadership ability and provides opportunities for personal growth.

Some of UAF’s residence halls have a wonderful view of the Alaska Range and Denali, the tallest peak in North America.

Residence Life offers living environments to meet every need. Options include coed buildings by floor, small community atmospheres for rural Alaskans, apartment-style options, double, single and super-single rooms, alcohol-free environments, gender-inclusive housing options, and first-year experience halls. All single-student residential units are pet and smoke free. Service and emotional support animals are permitted in all of our facilities.

Residence hall students have the conveniences of home within walking distance to class. Benefits include:

- optional local telephone service
- wireless and high-speed connections
- laundry facilities
- gender-inclusive housing
- trained staff on call 24 hours
- more than 400 programs each year

ELIGIBILITY

All students are eligible for campus housing, but students are not guaranteed housing until approved by the Department of Residence Life. To better manage occupancy, Residence Life requires that students be registered for a minimum of 3 in-class credit hours (online or distance education classes do not apply) to live in campus housing.

APPLICATION PROCESS

Applications are available through the Office of Admissions upon admittance to UAF or through Residence Life at http://www.uaf.edu/reslife/. Applicants must send $355 ($315 deposit, $40 nonrefundable application fee) with the signed housing application. Upon acceptance, Residence Life will send a written confirmation and receipt to the student.

COSTS

On-campus costs are comparable to off-campus living costs. When amenities such as wireless and computer connections, transportation and laundry facilities are added in, the on-campus costs are even more favorable. Residential fees (room and board) are due in full at fee payment along with all other fees. All students living in a residence hall are required to purchase a meal plan, with the exception of graduate students and residents living in the Sustainable Village. Please see the Dining Services section for more information regarding meal plans.

Room and board fees are listed below. All room and board costs are subject to change. Students whose housing applications have been accepted will be able to withdraw (minus the application fee) if rates increase after they apply. Contact Residence Life about residence hall fees. Questions about the meal plan should be directed to Dining Services at 907-474-6661 or uaf-dining@alaska.edu.

### Fairbanks Campus Single-Student Housing (per semester)

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double rooms</td>
<td>$2,122</td>
</tr>
<tr>
<td>Single rooms</td>
<td>$2,598</td>
</tr>
<tr>
<td>Super single rooms</td>
<td>$3,126</td>
</tr>
<tr>
<td>Cutler Apartment Complex</td>
<td>$2,409-$2,896</td>
</tr>
<tr>
<td>Sustainable Village single</td>
<td>$2,966</td>
</tr>
</tbody>
</table>

1 Extremely limited availability
2 Includes winter break

CONSEQUENCES OF CANCELING A HOUSING CONTRACT

After July 31, students who have submitted a housing application are expected to live on campus and pay appropriate housing fees for their reserved space. Students who do not occupy their reserved space by the first day of classes or who cancel their reserved space after July 31 will forfeit their deposit. Dining plans also carry cancellation consequences. Direct questions about meal plans to Dining Services at 907-474-6661 or uaf-dining@alaska.edu.

On-campus housing applications are for the academic year. Students living on campus for the fall semester are obligated to live on campus for the remainder of the academic year, so long as they are UAF students. Exceptions may be granted for the conditions listed under the “termination/forfeits” section of the agreement.

Room charges and refunds are processed according to the following schedule:

### Housing and Dining Refund Schedules

#### FALL 2018

<table>
<thead>
<tr>
<th>Cancellation Date</th>
<th>Housing</th>
<th>Forfeit Deposit?</th>
<th>Dining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Aug. 1</td>
<td>100% refund</td>
<td>No</td>
<td>100% refund</td>
</tr>
<tr>
<td>Aug. 1-22</td>
<td>100% refund</td>
<td>Yes</td>
<td>100% refund</td>
</tr>
<tr>
<td>Aug. 23-Sept. 7</td>
<td>90% refund</td>
<td>Yes</td>
<td>100% or prorated refund based on actual usage</td>
</tr>
<tr>
<td>Sept. 8-21</td>
<td>75% refund</td>
<td>Yes</td>
<td>50% refund</td>
</tr>
<tr>
<td>Sept. 22-Oct. 5</td>
<td>50% refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
<tr>
<td>Oct. 6-19</td>
<td>25% refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
<tr>
<td>After Oct. 19</td>
<td>No refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
</tbody>
</table>

#### SPRING 2019

<table>
<thead>
<tr>
<th>Cancellation Date</th>
<th>Housing</th>
<th>Forfeit Deposit?</th>
<th>Dining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Dec. 1</td>
<td>100% refund</td>
<td>No</td>
<td>100% refund</td>
</tr>
<tr>
<td>Dec. 1-Jan. 10</td>
<td>100% refund</td>
<td>Yes</td>
<td>100% refund</td>
</tr>
<tr>
<td>Jan. 11-25</td>
<td>90% refund</td>
<td>Yes</td>
<td>100% or prorated refund based on actual usage</td>
</tr>
<tr>
<td>Jan. 26-Feb. 8</td>
<td>75% refund</td>
<td>Yes</td>
<td>50% refund</td>
</tr>
<tr>
<td>Feb. 9-22</td>
<td>50% refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
</tbody>
</table>
Halls and Rooms

Every residence hall has common areas — including recreation lounges, study lounges, small kitchens and laundry facilities — to foster academic and personal growth. Recreational lounges typically have televisions, couches, tables, chairs and pool tables or pingpong tables. Hall kitchens generally include a range/oven, refrigerator, microwave, sink, table and chairs. Kitchens are for preparing snacks and not designed to replace the university meal plan.

All student rooms have high-speed connections, local telephone service and cable television service. Students must furnish their own twin-long linens, blankets, pillows, towels and telephone. Custodial service is provided for all common areas such as hallways, lounges and centrally located bathrooms.

Student Apartments

Residence Life offers two apartment-style complexes for students — the Sustainable Village and the Cutler Apartment Complex. Each Cutler apartment has a kitchen, two bedrooms and one bathroom, and houses up to four students. Each apartment also has a small patio or deck and a shared storage space. There are two laundry facilities in the complex that are open 24 hours a day. Students must have completed at least 35 credits to live in the Cutler Apartment Complex. The Sustainable Village is an environmentally focused community located on lower campus. The Sustainable Village consists of four houses that offer four single bedrooms with a shared living room, kitchen and bathroom and an outdoor deck. Student apartments are available to undergraduate and graduate students in single-student housing.

Room Use During Vacation Periods

All halls are open during Thanksgiving and spring break, but most are closed during the winter break, with the exception of Cutler apartments. All students living on campus in the fall and spring are eligible to remain on campus over the winter break provided they apply to do so and pay the winter break fee. Space is limited and is available on a first-come, first-served basis. The winter break fee for Cutler apartments is included in the fall semester rates. Food service is not available during the winter and spring breaks. Summer housing assignments are made through Residence Life.

Employee, Family and Graduate Housing

UAF offers a variety of on-campus housing for student families. The university owns and maintains 180 furnished apartments on campus, ranging from one- to three-bedroom units. They are affordable, comfortable and conveniently located near the center of campus. All apartments are smoke-free.

Eligibility

Students who are married and accompanied by their spouse, single parents with legal custody of their children, financially interdependent domestic partners and graduate students are eligible for employee, family and graduate housing options at UAF. At least one adult family member must be enrolled as a full-time UAF student. Students planning to be married by the time they move in may apply. However, students may not sign an occupancy agreement until they present a marriage certificate or obtain financial interdependence approval. New employees are also eligible for this housing option.

Application Process

Residence Life will mail an application for employee, family and graduate housing upon request (also available online at http://www.uaf.edu/reslife/). Applicants should return the completed form as soon as possible with a nonrefundable $75 application fee. Residence Life establishes waitlists according to the order in which it receives applications. The application is not a guarantee of accommodations, but it gives Residence Life the information it requires to meet the applicant’s needs. All apartment preferences are honored on a first-come, first-served basis.

Pet Policy

Residents of employee, family and graduate housing may keep fish, dogs, cats and small caged animals (including hamsters, gerbils and mice — limit of two small caged animals per household). No other animals may be kept as pets in campus housing. Visit the Residence Life website (http://www.uaf.edu/reslife/) for details about the application process. Applying to keep a pet does not guarantee approval.

Costs

Costs for families living on campus are comparable to the costs of living off campus. On-campus apartment rental rates include all utilities. Deposits for family housing are $600. Upon acceptance of your assigned apartment, $300 of the deposit is due. The balance of your $600 deposit and your first month’s rent is due when you check in. Your occupancy agreement is for the entire academic year, but you may cancel the agreement for spring semester without forfeiting your deposit if you graduate or are not enrolled at UAF. Cancellation requests must be submitted in writing to Residence Life with a 30-day notice of intent to vacate. See the cancellation/termination section of your agreement for more detailed information.

Fairbanks Campus Family Housing

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Cost (per month; year contract required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>efficiency, double-shared, one- to three-bedroom apartments</td>
<td>$782-$1,420</td>
</tr>
<tr>
<td>One- to three-bedroom home with garage</td>
<td>$1,204-$1,681</td>
<td></td>
</tr>
</tbody>
</table>

Apartments

The Fairbanks campus maintains five apartment complexes: Stuart Hall and Walsh Hall offer one-bedroom apartments (400 square feet) for couples without children; Hess Village offers one-bedroom (425 square feet), two-bedroom (720 square feet) and three-bedroom (900 square feet) apartments for families with children; and Garden Apartments is a six-plex offering shared two-bedroom apartments. Harwood Hall offers
efficiencies (380 square feet) and one-bedroom apartments (470 square feet) for graduate couples without children and single graduate students. All complexes are equipped with laundry facilities.

Campus apartments are fully furnished and include computer connections, cable television service, laundry facilities and local telephone service.

Immunization Policy and Housing
The University of Alaska strictly enforces immunization and test requirements for students living in high-density housing. To live in residence halls and single-student apartment complexes, all students and other persons born after 1956 must complete, sign and submit a health inventory form to the Student Health and Counseling Center. The form must show:

1. Proof of immunization against or immunity for measles, mumps and rubella (two MMR are required).
2. Proof of immunization against diphtheria and tetanus (within the past 10 years).
3. PPD screening for tuberculosis (within the past year). If your screening was positive, you must provide evidence of a negative chest X-ray.

Although the university urges all students to be immunized against communicable diseases, these requirements are specifically intended to help ensure the health of all resident students.

MANDATORY IMMUNIZATIONS AND TESTS
Your application for housing may be withheld for your second semester if you have not submitted these items. The university may require additional or expanded immunization and testing if the university community’s health and safety warrants it.

The university may grant exemptions from immunization requirements based on medical or religious reasons. The chancellor may also grant exemptions to people who will occupy student residence facilities for less than a semester. Those exempted from immunization or testing for a disease may be removed from student residence facilities should an outbreak of that disease occur or threaten to occur. Residence Life cannot authorize exceptions to this policy.

See Board of Regents’ Policy, Part IX—Student Affairs, Chapter XI—Student Health. For more information, contact the Student Health and Counseling Center at 907-474-7043, uaf-sh-cc@alaska.edu or http://www.uaf.edu/chc/.

Where To Get More Information
Department of Residence Life
University of Alaska Fairbanks
Main Floor, Moore-Bartlett-Skarland Complex
P.O. Box 756860
Fairbanks, AK 99775-6860
Email: uaf-housing@alaska.edu
Online: http://www.uaf.edu/reslife/
Telephone: 907-474-7247
Fax: 907-474-6423

Dining Services
The UAF Dining Experience
UAF Dining offers a welcoming, affordable dining experience for Fairbanks residential and commuter students. With six locations on the Fairbanks campus, you will find something to satisfy all your dining needs. All of them accept cash, BearBucks, Munch Money and credit cards. Please visit http://www.uaf.edu/dining/ for more information on each location.

MEAL PLAN OPTIONS
Meal plans are combinations of block dinners and Munch Money. All-you-care-to-eat block dinners can be used at Dine Forty-nine and as cash equivalency up to $7 at most Fairbanks campus dining locations (excluding Subway) from 11 a.m. until closing. Munch Money is used like cash at all dining locations and most vending machines on campus.

Freshmen residing on campus must select either the Block 105 or Block 75 meal plan.

MEAL PLANS
All freshmen living in campus housing may only select either Block 150 or Block 75.

<table>
<thead>
<tr>
<th>Meal Plan</th>
<th>Block Dinners</th>
<th>Munch Money</th>
<th>Price per semester</th>
<th>Available to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 105</td>
<td>105</td>
<td>$1,200</td>
<td>$2,365</td>
<td>All</td>
</tr>
<tr>
<td>Block 75</td>
<td>75</td>
<td>$1,425</td>
<td>$2,365</td>
<td>All</td>
</tr>
<tr>
<td>Blue plan</td>
<td>0</td>
<td>$2,095</td>
<td>$2,095</td>
<td>All</td>
</tr>
<tr>
<td>Gold plan</td>
<td>0</td>
<td>$1,095</td>
<td>$1,095</td>
<td>Wickersham/Cutler students only</td>
</tr>
<tr>
<td>Block 30</td>
<td>30</td>
<td>$300</td>
<td>$610</td>
<td>Cutler residents and commuter students only</td>
</tr>
<tr>
<td>Block 15</td>
<td>15</td>
<td>$150</td>
<td>$305</td>
<td>Cutler residents and commuter students only</td>
</tr>
</tbody>
</table>

USING YOUR MEAL PLAN
Blocks and Munch Money are accessed using the PolarExpress student ID card. With all meal plans, you have the option to eat at any campus dining location or to make purchases at most campus vending machines.

All students living in a residence hall are required to purchase a meal plan, with the exception of graduate students and residents living in the Sustainable Village. UAF also offers meal plans to students not living on campus. Students wishing to share meals with others may do so as long as they are present. For more information on meal plan options and plan details, please review the Dining Services program terms and conditions at http://www.uaf.edu/dining/.

All pricing is per semester. Students will automatically be enrolled in the same meal plan in the spring semester unless Dining Services is notified in writing of a different selection. These plans are nontransferable. All remaining block dinners will expire on the final day of each semester.
Leftover Munch Money from the fall semester will be added to the spring meal plan, but expires at the end of the academic year in May if not used. Unused dinners and Munch Money will not be refunded.

Dining services on campus are provided by UAF partner Chartwells Higher Education Dining Services, an international food and facilities management services company. Check Dining Services’ website at http://www.uaf.edu/dining/ for additions or changes.

**Where To Get More Information**

**Dining Services**
University of Alaska Fairbanks
Wood Center, Room 101M
P.O. Box 757815
Fairbanks, AK 99775-7815
Email: uaf-dining@alaska.edu
Online: http://www.uaf.edu/dining/
Telephone: 907-474-6661
Fax: 907-474-5707
SERVICES AND RESOURCES

Academic Advising and Learning Assistance

Academic advising is a vital part of your experience as a student at UAF. In fact, academic advising is so important that UAF requires you to meet with your academic advisor at least once a semester before you can schedule your courses. Your academic advisor can help you develop an educational plan encompassing your academic and career goals, requirements of your major, and your semester-by-semester study plan to make the best use of your credits. Students can also see their degree and major requirements through DegreeWorks at http://uaonline.alaska.edu. UAF students admitted into a major will be advised by a faculty or staff advisor from their department. Visit http://www.uaf.edu/admitted/advising/ for academic advisor contact information.

The Academic Advising Center, on the Fairbanks campus, helps general studies undeclared and pre-major students as well as students in majors who are exploring other bachelor’s or pre-professional degree programs. Certificate, associate, vocational and technical program students are advised at the Community and Technical College Student Advising and Registration Center in downtown Fairbanks. Native and rural Alaska students are encouraged to seek an academic advisor from Rural Student Services in the Brooks Building. Students at community campuses outside Fairbanks can contact their local student services staff for information on registration, deadlines and other policies unique to their campuses or regions.

Academic Advising Center

Academic Advising Center advisors offer guidance for general studies, undeclared, exploratory, pre-major and AHEAD students, as well as student-athletes, nondegree students and students in transition from a declared major to another degree program. The center is also a clearinghouse for general university and degree information. Academic advisors also help students with information about nontraditional credit options like credit for prior learning and pre-professional academic programs like veterinary science, law, dentistry, pharmacy or other pre-professional programs.

The Academic Advising Center, in cooperation with other departments, sponsors student success workshops on a variety of special topics, including study skills, deciding on a major and overcoming math anxiety. Staff provide academic support with reference materials, referrals and study assistance to build and refresh knowledge in writing, math, reading and science. Staff can also help students discover their interests, abilities and aptitudes using software programs, inventories and other tools and assessments that provide guidance about careers and academic majors. These programs are free to students.

Contact the Academic Advising Center at 510 Gruening Building, 907-474-6396, toll free at 888-823-8780 or uaf.advising@alaska.edu. Specific information for students can be found at http://www.uaf.edu/advising/.

Community and Technical College Student Advising and Registration Center

The Community and Technical College Student Advising and Registration Center provides advising and support for students in A.A. and A.A.S. degree, certificate and specialized training programs to contribute to a successful learning experience and transition to a career. Staff recognize the unique concerns of adult and returning students as well as traditional students entering college. Academic advisors can help with pre-admission advising, academic assessment and placement, financial aid information and applications, and choosing a major.

The center offers academic support through developmental courses, workshops, classroom presentations and one-on-one assistance to help conquer academic hurdles. In addition, advising staff provide personalized career advice based on job market information and a student’s personal goals. Staff ensure that students have a broad base of support as they plan the move from college to career.

For more information, contact the Student Advising and Registration Center, Community and Technical College, 604 Barnette St., Fairbanks, AK 99701, call 907-455-2800 or visit http://www.ctc.uaf.edu/student/.

Rural Student Services

Rural Student Services is the vital link between the Fairbanks campus and rural Alaska communities. RSS provides comprehensive academic advising services with a focus on the freshman and sophomore years. Advisors at RSS recognize and are sensitive to the unique cultural components of Native and rural students at UAF. RSS advisors provide comprehensive advising and referrals to various support services on the Fairbanks campus. RSS advisors register students for classes, explain academic requirements and explore degree options. Other RSS services include assistance with admissions and financial aid, career advising and student advocacy.

RSS functions as a student center in the Brooks Building where students can share Native cultural traditions on campus and attend a variety of Native student club activities. Students who are enrolled at UAF and are Alaska Native or come from a rural area are encouraged to use RSS as their home base.

For more information contact Rural Student Services, Brooks Building main floor, call 907-474-7871 or 888-478-1452, email uaf-rss@alaska.edu or visit http://www.uaf.edu/ruralss/.

International Student Advising

Students from other countries face many situations that American students do not encounter. International students must comply with immigration regulations, adapt to a new and often strange culture, and adjust to the American system of higher education. International student advisors are a liaison between the student and various U.S. immigration agencies. Advisors issue documents so students can apply for visas, help students adjust to UAF, and provide immigration and personal assistance. For more information, contact the Office of International Programs and Initiatives at 907-474-7677 or 907-474-7157, uaf-internationalprograms@alaska.edu or http://www.uaf.edu/oip/.

Student Support Services

Student Support Services gives students opportunities for academic development, helps them meet college requirements and motivates them to complete their degree program. SSS addresses the unique challenges faced by students from non-college-going and limited-income backgrounds, and supports students experiencing a documented disability by helping them take advantage of academic support resources at UAF. The program is funded by a TRiO grant from the U.S. Department of Education.
Services include comprehensive advising, tutoring, math skills instruction, academic and STEM mentoring, cultural and social engagement, laptop and media loan, and a supportive environment. Eligible incoming local freshmen are encouraged to apply to Emerging Scholars Academy bridge program held every fall.

All services are free to eligible students. The program is staffed with certified student tutors.

To receive SSS program services, a student must have academic need and meet one of the following criteria:

- be financially limited according to federal criteria,
- be a first-generation college student (meaning neither parent has earned a bachelor’s degree), or
- have a documented physical or learning disability.

Participants must also be U.S. citizens or permanent residents, be enrolled in at least 6 credit hours and intend to obtain a bachelor’s degree.

For information, contact Student Support Services in 514 Gruening Building, at 907-474-6844 or trio.sss@alaska.edu, or visit http://www.uaf.edu/sss/ for an application.

Tutoring Services

Information about lab hours for all Fairbanks campus academic support resources as well as tutoring options is on the Academic Advising Center website at http://www.uaf.edu/advising/lr/. Most of these resources are free.

- Accounting Lab
  The Accounting Lab provides tutoring services to students enrolled in accounting courses. Located in 219 Bunnell Building, the lab is staffed by accounting graduate students and outstanding undergraduate students. Lab hours are assigned (but flexible) Monday through Saturday. For more information, contact the Department of Accounting and Information Systems at 907-474-1945.

- Chemistry Learning Center
  For more information contact the Department of Chemistry and Biochemistry at 907-474-6287 or http://www.uaf.edu/chem/clc/.

- Developmental Education Math, English and Reading Labs
  The Department of Developmental Education provides academic support labs in math, English and reading. These labs are at each rural campus, at the Community and Technical College, and on the Fairbanks campus. Labs provide tutoring and small-group instruction for students taking developmental, academic or vocational math, and reading and writing courses. Academic support labs supplement and support student learning as well as improve and expand student skills in these areas. For further information contact your local campus or the Department of Developmental Education at 907-474-1112.

- Foreign Language Laboratory
  The language lab, in 609 Gruening, provides assistance in French, Spanish, Japanese, German and Russian. Computer programs, CDs, cassettes and spell-checkers are available. Call the Department of Foreign Languages and Literatures at 907-474-7396 for lab hours.

- Math and Statistics Laboratory
  This lab provides flexible-hour assistance seven days a week to students enrolled in mathematics and statistics courses. The lab is coordinated by faculty, and services are provided by students. For more information, contact the Math Department at 907-474-5427.

- Speaking Center
  The Speaking Center in 507 Gruening provides coaching on refining presentation topics and presentation organization. Students receive immediate, constructive suggestions from a Speaking Center coach. The center is usually open weekdays and some evenings. Visit http://www.uaf.edu/speak/ for center hours. For more information, contact the Speaking Center at 907-474-5470 or fyspeak@uaf.edu.

- Writing Center
  The Writing Center is open Sunday through Friday for tutoring all enrolled students. The staff, composed of English graduate teaching assistants and outstanding undergraduate students, reviews student writing projects at any stage, from planning to drafting and revising. Tutors are available to help students improve grammar and usage. For information, contact the Writing Center, 907-474-5314.

Academic Records, Registration and Graduation

The Office of the Registrar provides guidance for all students in registration, academic records support, academic policy interpretation, classroom scheduling, degree audits, graduation certification and transcript processing. The office offers training workshops for students and staff on a variety of topics, including DegreeWorks, UAOnline, faculty grading and registration. All services (e.g., registration, grades, degree audits and unofficial transcripts) are available through UAOnline at http://uaonline.alaska.edu. Information about how to register is available at http://www.uaf.edu/register/.

For more information, contact the Office of the Registrar on the first floor of Signers’ Hall, call 907-474-6300, email uaf-registrar@alaska.edu or visit http://www.uaf.edu/reg/.

Alumni Association

The UAF Alumni Association is an independent nonprofit that connects and supports UAF graduates and former students. The association works closely with the Office of Development and Alumni Relations, and offers scholarships, sponsors networking events in Alaska and the Lower 48 including the Nanook Rendezvous reunion, and advocates on behalf of the university before the state Legislature. Through the association, alumni have the opportunity for lifelong involvement with UAF and their former classmates. For more information contact the alumni association at 907-474-7081, uaf-alumni@alaska.edu or http://www.uaf.edu/alumni/.

Army ROTC

UAF is home to the only Army Reserve Officers Training Corps in Alaska. The military science program is staffed with regular Army and Alaska National Guard officers and noncommissioned officers. The curriculum challenges students to develop interpersonal, mental and physical skills, cultivating leaders of character capable of bearing the responsibilities of tomorrow’s civil and military leadership positions.

The focus of ROTC is academic excellence and preparing leaders. All students enrolled in at least one course are assigned a faculty member to provide leadership and academic counseling.

ROTC offers a variety of resources, including scholarships, athletic teams and academic assistance. Neighboring Fort Wainwright offers students numerous opportunities to participate in military activities such as the Arctic biathlon competition, mentorships and recreational activities in an
Arctic environment. For more information visit http://www.uaf.edu/rotc/ or call 907-474-7501.

Financial Assistance
Army ROTC provides financial assistance in the form of scholarships and stipends. The current stipend ranges between $300-$500 monthly depending on military science class level, and is tax free for all committed cadets. ROTC scholarships also pay 100 percent of tuition and mandatory fees and provide $1,200 annually for books and supplies. Scholarships are available for two to four years and may be used for graduate studies.

Army ROTC also offers partnership, or simultaneous membership, programs with the Reserves and National Guard. These partnerships provide a suite of financial assistance programs for ROTC cadets, including tuition assistance, GI Bill benefits, bonuses, stipends and pay. In addition, Army ROTC at UAF is granted a limited number of room waivers and chancellor’s tuition waivers for qualified students. For more information call 907-474-7501 or visit http://www.uaf.edu/rotc/.

Curriculum
The military science curriculum is an approved minor which includes credit for one writing- and one oral-intensive course. Classes, including outdoor skills labs, are offered every semester. Labs give students hands-on instruction in areas such as rappelling, skiing, first aid, land navigation and survival.

Army ROTC comprises two levels: the basic course followed by the advanced course. Credit for the basic course can be earned in three ways: by completing freshman and sophomore military science classes, by completing a four-week summer camp or by having prior military basic training. Students incur no obligation to Army ROTC or the Armed Forces during the basic course.

Students who complete the basic course may enter the advanced course, which is normally reserved for juniors and seniors pursuing a commission in the regular Army, Army Reserves or Army National Guard. For more information contact the Department of Military Science at 907-474-6852/7501, uaf-army-rotc-dept@alaska.edu (https://mail.google.com/a/ alaska.edu/mail/?view=cm&fs=1&tf=1&to=uaf-army-rotc-dept@alaska.edu) or http://www.uaf.edu/rotc/.

ASUAF
The Associated Students of the University of Alaska Fairbanks is in Wood Center. All students enrolled in 3 or more credits are ASUAF members. ASUAF runs service departments and programs dedicated to the interests and welfare of UAF students. ASUAF represents UAF students to the university administration, the board of regents and the Alaska Legislature. Officers are selected by the student body in elections held every fall and spring semester. For information, visit ASUAF at http://www.asuafstudentgov.org or call 907-474-7355.

Athletics
The National Collegiate Athletic Association is the primary association that governs and controls intercollegiate athletics on the national level. The Alaska Nanooks athletic program is a multidivisional member of the NCAA, with 10 teams competing at the Division I and Division II levels, including men’s and women’s basketball, men’s and women’s cross country, men’s and women’s Nordic skiing, coed rifle, women’s volleyball, women’s swimming, and men’s ice hockey. For intercollegiate athletics information, call 907-474-6665 or visit http://www.alaskananooks.com.

The Alaska Nanooks have conference affiliations with the Great Northwest Athletic Conference, Western Collegiate Hockey Association, Rocky Mountain Intercollegiate Ski Association, and Pacific Collegiate Swim and Dive Conference. The 10-time NCAA champion Alaska Nanook rifle team competes in the Patriot Rifle Conference.

The Ernest N. Patty Center, home of the Alaska Nanook teams, was completed in 1963 and houses a 1,650-seat gymnasium, a 25-yard swimming pool, courts for handball, squash and racquetball, a varsity weight room, a rifle range, offices, and locker rooms with saunas. In 1979, the 1,300-seat Patty Ice Arena was built to the west of the Patty Center. The Alaska Nanook men’s hockey team practices at the Patty Ice Arena and also practices and competes off campus at the 4,595-seat Carlson Center.

Campus Mail Center
Students who wish to receive U.S. Postal Service mail on campus must rent mail boxes in 107 Constitution Hall. Rent is $55 per semester and is billed automatically once a box is open until it is closed through UAOnline (http://uaonline.alaska.edu). Limited numbers of larger boxes are available for additional cost. There is a $15 lost key charge. Packages may be mailed using the automated kiosk at the same location.

Renting, updating address information and closing boxes is done through UAOnline (http://uaonline.alaska.edu).

Mail boxes are for individual or family use. They are not to be shared with other students. Mail not addressed to the box holder will be returned. U.S. Postal Service mail is delivered to box holders only through their mail boxes; UPS and FedEx will deliver to box holders using the physical address: 1692 Tok Lane Room #107, Box 75xxx (use the student’s box number), Fairbanks, AK 99775. A delivery notice will then be placed in the student’s mail box. Parcel lockers are available for most package pickups and can be accessed during the building’s open hours (6:30am-9:00pm). Oversized packages and those requiring signatures can be picked up during the campus mail center’s open hours (Monday-Friday, noon-3 p.m.).

For more information visit http://www.uaf.edu/fs/services/postoffice/. Questions? Email uaf-postoffice@alaska.edu (campus.postoffice@uaf.edu), call 907-474-7215 or write UAF Campus Mail Center, P.O. Box 750100, Fairbanks, AK 99775-0100.

Campus Recreation
Recreational opportunities are organized by the Department of Recreation, Adventure and Wellness. Activities are housed primarily in the Student Recreation Center, the Patty Ice Arena and the Patty Center. For information on hours, recreational activities or intramurals, call 907-474-5886 or visit http://www.uaf.edu/draw/.

The SRC offers a wide variety of structured and unstructured recreational activities. The SRC provides a weight room and a large gym floor that can be divided into courts for volleyball, tennis, badminton, soccer and basketball. A two-story indoor climbing wall, an eight-lap-per-mile running track, aerobics/dance floor and cardiovascular machines provide many options for a well-rounded workout. Eligible students have access to SRC facilities when your fees are paid — just remember to bring your workout shoes as street shoes are not allowed on the courts or floors.
Intramural leagues and competitions, aerobic workouts, and fitness and recreation instruction give students many opportunities to stay fit, learn lifetime skills and use the skills they already have. DRAW staff members develop and support sports clubs in response to student interests and available resources.

Outdoor fields for soccer and Ultimate Frisbee, an outdoor climbing wall — which in winter is converted to an ice climbing wall — and a disc golf course are next to the SRC, and the campus has many miles of cross-country trails for running, walking and skiing, including a lighted ski trail. In addition, recreational skating, recreational hockey, intramural broomball and intramural hockey take place at the Patty Ice Arena, also next to the SRC. Students taking 6 credits in a classroom and paying the recreation fee also have the opportunity to receive a season pass to Ski Land at no additional charge. Ski Land has the farthest north chairlift in North America, ski and snowboard rentals, miles of trails, a terrain park and aurora viewing lodge. Go to http://www.uaf.edu/draw/ for more details.

Explore Alaska’s wild frontier by joining an Outdoor Adventures excursion. OA organizes a variety of outings, such as hikes, whitewater raft trips and rock climbing excursions. OA also offers courses such as ice climbing, sea kayaking and wilderness leadership. Equipment is available for rent, including backpacks, canoes, cross-country skis and much more. Visit the Outdoor Adventures office in the Student Recreation Center or at http://www.uaf.edu/draw/ for more information.

Students with disabilities are encouraged to participate in campus recreation programs. Anyone confronted with any barrier to participation is urged to contact the SRC office.

Career Services

Career Services provides career counseling and job search assistance, and also reviews statements for graduate school applications. The Career Services advisor reviews resumes and cover letters, conducts practice interviews and provides online resources through the Career Services website. Information about employment, internships and on-campus jobs is available 8 a.m.–5 p.m., Monday–Friday.

Students and alumni can network with employers and explore careers by participating in on-campus recruitment events, career weeks focused on specific fields, and job fairs where students can apply for full-time employment and internships with local, statewide and national employers. Career Services is in the Academic Advising Center on the fifth floor of the Gruening Building. For more information call 907-474-7596, email uaf-career@alaska.edu or visit http://www.uaf.edu/career/.

Continuing Education and Professional Development

The Community and Technical College offers training and continuing education programs to meet employment needs in the trades and professions. In response to individual and community demands, CTC provides short courses, noncredit workshops, supervisory and customer service skill seminars for local businesses and agencies, and general programs for cultural enrichment. Programs can be tailored to a specific group or need, and offer an economical way to improve workforce development skills. Call 907-455-2858 for more information about professional development.

Cooperative Extension Service

The Cooperative Extension Service is part of the largest informal education system in the world, connecting Extension programs and land-grant colleges and universities in every U.S. territory and state.

Whether teaching people how to can salmon, build a house or compost with worms, Extension Service staff have provided research-based, practical education to Alaskans since 1930. Extension now offers community outreach and engagement programs in all areas of the state.

UAF’s outreach role is filled in part by Extension faculty and staff in Anchorage, Bethel, Delta Junction, Dillingham, Fairbanks, Juneau, Kodiak, Nome, Palmer, Sitka and Soldotna, and in affiliate offices with the Tanana Chiefs Conference and Eielson Air Force Base.

As the state’s gateway to the university system, Extension serves some 80,000 Alaskans annually, providing a link between Alaska’s diverse people and communities by interpreting relevant knowledge of interest to Alaska residents. Major issue areas include food safety and security, health; climate change; energy; youth, families and communities; and economic development.

Extension has produced hundreds of publications and videos on a variety of topics with practical information that Alaskans can use. These are available at district offices or online at http://www.uaf.edu/ces/.

For more information, call 907-474-5211 or 877-520-5211 toll free, or visit http://www.uaf.edu/ces/.

Developmental Education

The mission of developmental education at UAF is to make educational opportunity and success possible for all students by developing the skills and attitudes necessary to achieve academic excellence and student success, and to develop lifelong learning skills.

Developmental education courses prepare students for university academic and vocational/technical programs by improving skills in math, writing and reading. Study skills classes prepare students to successfully negotiate the university experience. A student’s need for developmental education courses is determined by high school transcripts, test scores, other achievement data and discussions with counselors, advisors and instructors. Students may also take developmental education courses when they want to improve their skills or proficiency.

There are three categories of developmental education courses:

- developmental math
- developmental English (writing skills)
- developmental studies (reading and study skills)

Descriptions of developmental education classes are listed in the courses section under developmental math, developmental English and developmental studies.

For more information, contact the Department of Developmental Education offices at 907-474-1112 or visit http://www.uaf.edu/deved/.

Disability Services

Disability Services strives to ensure universal access to classes, programs and activities. UAF has designated Disability Services to determine reasonable accommodations for students with disabilities.
Accommodations are free and available to any student who qualifies as an individual with a disability and is enrolled in at least 1 credit hour.

The Disability Services Office at UAF serves students who are enrolled in classes at the Fairbanks campus, as well as the Bristol Bay, Chukchi, Interior Alaska, Kuskokwim, Northwest, and Community and Technical College campuses, Distance Education, and the College of Rural and Community Development.

Disability Services uses an interactive process designed to be convenient for students. It starts with a simple conversation. Our first goal is to better understand your unique experience. We then partner with faculty and staff to provide academic, university housing and programmatic accommodations.

For more information contact Disability Services at 907-474-5655 or 907-474-1827 (TTY), email uaf-disability-services@alaska.edu or visit http://www.uaf.edu/disability/. You can also visit the Fairbanks campus office in Whitaker 208.

E-learning

UAF’s eLearning & Distance Education offers an alternative for anyone preferring an online educational option. The advantage of e-learning, also known as online learning, is its flexibility. Students select their own hours of study and work in surroundings they choose. E-learning offers the freedom to structure a personal academic schedule and the flexibility to continue educational progress, even when it is impossible or challenging to attend scheduled, face-to-face classes.

UAF eLearning & Distance Education offers more than 350 courses in 60 disciplines and offers full degrees and certificates completely online. eLearning courses follow all university calendars and deadlines and must be completed within the semester time frame. These courses use the Blackboard Learning Management System. You are required to have reliable Internet access to complete eLearning courses.

For UAF students, eLearning courses count as residence credit. When a student enrolls in an eLearning course, the course may be used to determine full-time/part-time status and eligibility for financial aid and scholastic action. The grade will average in your semester and cumulative GPAs.

Information on course offerings, online certificates and degrees, enrollment information and course descriptions can be found at http://elearning.uaf.edu. For more information contact UAF eLearning & Distance Education in 131 Bunnell Building, by phone at 800-277-8060 or 907-455-2060, via email at uaf-elearning@alaska.edu or at http://elearning.uaf.edu.

The University of Alaska provides many possibilities for students to take distance-delivered courses. The campuses at Anchorage, Fairbanks and Juneau, along with their community college networks, offer hundreds of courses using a variety of delivery modes. Opportunities for students who prefer distance-delivered courses can be found at the University of Alaska Distance Learning website at http://distance.alaska.edu.

Equity and Compliance

Staff in the Department of Equity and Compliance lead a focused effort to build inclusive systems and a welcoming environment at UAF. Staff ensure equality of employment and educational opportunities, and work to eradicate discriminatory practices.

DEC staff investigate complaints of discrimination and sexual harassment and work with parties to find resolution. If students or employees believe they are being treated differently because of their race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status, they can lodge a complaint with DEC. Complaints can be filed online (http://www.uaf.edu/oeo) or by visiting the office.

DEC is in the Nordic House at 1656 Columbia Circle. For more information call 907-474-7300 or visit http://www.uaf.edu/oeo/.

General Studies and Undeclared

Students pursuing a bachelor’s degree who haven’t declared a major or haven’t decided which major to pursue are admitted as undeclared students. Undeclared students usually take courses required for the university general education requirements. Many of these courses are the same for all majors and allow you to make progress toward completing degree requirements while at the same time investigating subject areas that may help you choose a major or career. Undeclared students work with academic advisors in the Academic Advising Center who encourage exploring, selecting and committing to an appropriate major. All undeclared students must declare a major before they have earned 75 credits. To declare a major, simply complete a change of major form available from the Office of the Registrar or at http://www.uaf.edu/reg/forms/. Students receiving GI assistance or veteran’s benefits may be required to change to a declared major to keep their benefits award. Students must have declared a major in order to participate in the Western Undergraduate Exchange program.

The director of the Academic Advising Center functions as the department chair, and the vice provost functions as the dean for general studies and undeclared students, and oversees academic assistance and actions concerning general studies and undeclared students. For more information, contact the Academic Advising Center, 907-474-6396 or toll free at 888-823-8780, or contact the vice provost’s office at 907-474-2764.

Pre-Major

Students admitted in pre-major standing have not met the admission requirements for bachelor’s degrees but are intending to major in a bachelor’s degree. As a bachelor’s-intended student, you will work with advisors in the Academic Advising Center, but it is helpful to also contact the department of your intended major. Pre-major students will work with an academic advisor from the Academic Advising Center to determine the best selection of courses to pursue their desired major, as well as complete any additional admittance requirements into their desired program. Students who are in good standing and have completed 14 credits at the 100 level or above with a C grade average (2.0) or better, of which 9 credits must satisfy baccalaureate general education requirements, will be changed to undeclared major status. The vice provost will notify students of their change of status and inform the registrar. Undeclared students can then use the change of major form to move from undeclared to their desired major. Admission into a desired major is determined by the completion of individual program requirements and approval of the department chair.
Honors Program

The UAF Honors Program provides opportunities for students to pursue excellence in academic and personal development. We foster critical and independent thinking and help students become informed, responsible and active citizens. Honors students have access to small classes, research opportunities, intensive advising and scholarships. Students are encouraged to participate in service, leadership, research, study abroad, internships and other opportunities that contribute to their personal growth.

Eligibility

To be eligible to join the Honors Program, entering freshmen must have a cumulative high school GPA of 3.6 and a combined SAT score of 1300 or a composite ACT score of 27. Current UAF students and transfer students must have a combined cumulative GPA of 3.5 that includes at least 24 credits of college courses. The Honors Program accepts applications all year. The application form is at http://www.uaf.edu/honors/.

Program Features

Honors students complete a flexible schedule of courses that includes honors sections of some general education courses and courses developed specifically for the Honors Program. Other courses may be contracted for honors credit by students who work with individual professors. With approval by the director, students who study abroad may earn up to 12 honors credits for the academic courses they take at their host universities. Undergraduate students who complete graduate courses may count those courses toward their honors course requirement. In all cases, courses will only count toward the honors distinction if the student earns a grade of B (3.0) or higher. Honors students must be enrolled full-time in a baccalaureate degree program and are expected to complete a minimum of 6 honors credits each academic year.

The Honors Program offers students intensive advising with an opportunity to develop a personal plan for their UAF years that builds in extracurricular opportunities, research, leadership, service and more to meet the goals of each student.

The Honors House, located in the heart of campus, provides honors students a casual and comfortable home away from home. The house includes computer labs, a smart classroom, quiet study areas, a kitchen, a laundry room and a place for social gatherings.

Program Requirements

To graduate with a distinction from the Honors Program, students must fulfill GPA, capstone project or thesis, and honors course and credit requirements.

Honors students must maintain a cumulative GPA of at least 3.25. Students whose cumulative GPA falls below 3.25 for two consecutive semesters will be removed from the program unless an appeal is approved by the honors director.

In addition to the other program requirements, students must work with a faculty mentor to complete a capstone thesis or project that includes a written component and an oral presentation.

University Honors Scholar distinction is awarded at commencement to students who complete 27 or more credits of honors courses including specific honors courses, elective honors courses, and a capstone project or thesis, in addition to other program requirements. Students who join the program after they complete 60 or more credits, either from UAF or from a transfer institution, can graduate as an Honors Thesis Scholar by completing 12 credits of honors course work and a capstone project or thesis in addition to other program requirements.

Additional Information

For more information contact the Honors Program at the Honors House, 520 Copper Lane, 907-474-6612, uaf.honors@alaska.edu or http://www.uaf.edu/honors/.

Libraries

UAF has two libraries on the Fairbanks campus and libraries on four rural campuses. The Elmer E. Rasmuson Library, on the Fairbanks campus, is the largest academic library in the state, with more than a million volumes. The Keith B. Mather Library, also on the Fairbanks campus, holds collections in the geological and biological sciences and is Alaska’s U.S. Patent and Trademark Office depository. Both libraries offer wireless and wired networking, public computer terminals, and designated quiet study spaces with natural lighting. Rasmuson Library also has group study rooms and a secure 24-hour study space with a student computer lab.

The Rasmuson and Mather libraries provide extensive reference and instructional services for students. Library faculty and staff help students conduct library research using print materials and online databases and collections. The library information and research course, LS F101X, is a required course for bachelor’s and associate degrees and gives students an introduction to effective methods of identifying, locating and evaluating information resources.

Online catalogs and databases provide access to library resources at UAF libraries and, through interlibrary loan, worldwide. The library website is a gateway to more than 300 online resources, with broad coverage in the sciences, humanities and social sciences, management, and engineering. Web-based indexes and collections link to full-text articles from more than 60,000 periodical titles. Additional web-based resources include reference tools, electronic books, specialized sources for Arctic and polar information, and indexes to special formats such as government documents and dissertations. ScholarWorks@UA, the University of Alaska online institutional repository, makes theses, dissertations, articles and other scholarly works by UA students and faculty available to the public.
The Rasmuson Library is a federal depository library and houses titles from the Government Printing Office that are related to Alaska and some Pacific Northwest states. Special collections in the library include the internationally recognized Alaska and Polar Regions Collections and Archives, which houses historical books, periodicals, documents, manuscripts, photographs, film, audio recordings and maps. APRCA hosts Alaska's digital archives and continues to digitize archival materials to make additional specialized materials available to the public.

Get more Rasmuson Library information at 907-474-7481, AskRasmusonLibrary@uaf.libanswers.com or http://library.uaf.edu.

New Student Orientation

New Student Orientation helps incoming students establish a foundation for success. All new students are strongly encouraged to participate in New Student Orientation on the Fairbanks campus. Orientation is required for all first-year bachelor’s-degree students (regardless of the number of earned college credits) and international students (undergraduate F-1 and international exchange J-1 status). Domestic transfer students are also encouraged to attend.

New Student Orientation features a variety of workshops and activities to address the needs of incoming students, including campus tours, opportunities to meet faculty and staff, numerous campus resource presentations, and many fun social events. Fall semester includes the popular family orientation for parents and other family members of new students. Fees are $115 per student for fall orientation, which covers all programs except special Outdoor Adventures activities; $10 for one-day fall transfer student orientation; $25 (plus $10 each additional guest) for two-day fall family orientation; and $35 for spring orientation. For more information, contact the New Student Orientation office at 907-474-1103 or visit http://www.uaf.edu/admitted/orientation/.

Northern Military Programs

Northern Military Programs (https://www.ctc.uaf.edu/student-services/military-student-support) is Interior Alaska’s point of contact for University of Alaska programs. UAF has been designated a Military Friendly Institution since 2008, and UAF CTC maintains offices on Fort Wainwright and Eielson Air Force Base to serve military personnel and their families. CTC offers university classes at Fort Wainwright, Eielson Air Force Base and via distance education. In addition, NMP offers courses to the Delta community at Fort Greely and the Career Advancement Center in Delta Junction.

CTC actively supports the Wounded Warrior Transition Unit with academic advising and future career preparation. CTC offers Accuplacer (English), ALEKS (math) and CLEP/DANTES placement testing on post.

For information contact Northern Military Programs offices at Eielson Air Force Base, 2631 Wabash Ave., Room 105, 907-377-1396; Fort Wainwright, 4391 Neely Rd., Room 137, 907-356-3826; or Delta Career Advancement Center, 1696 N. Clearwater Road, 907-895-4605.

PolarExpress Identification Card

The PolarExpress card is the official UAF photo identification card used by students, staff and faculty to access UAF facilities and to make purchases. The card includes your name, photograph and UA identification number. A central database holds information to identify the buildings and rooms you may access, meal plan type, some account balances, library checkouts, computer lab access, and other activities. See the complete list at http://www.uaf.edu/bursar/polarexpress/.

Your PolarExpress card lets you ride the MACS transit bus system for free with ID card, check out library books, vote in student elections, as well as access to the Student Health and Counseling Center and other student services. The card's magnetic stripe holds a unique key that may provide secure access to residence halls, laboratories and the Student Recreation Center. You can deposit money into your Bear Bucks account, which can be used at all Dining Services locations, photocopiers, the Wood Center counter and the UAF Bookstore. The PolarExpress card is a permanent card, valid for two years after the holder’s last affiliation with the university. All privileges expire upon departure from the university, with the exception of Bear Bucks and Munch Money accounts. Holders who return to the university system within two years and no longer have their PolarExpress Card must purchase a replacement card.

You can also enjoy optional banking convenience (https://www.wellsfargo.com/debit-card/campus-card/uaf) through a second magnetic strip with your PolarExpress Card when you link it to a Wells Fargo Everyday Checking Account. This allows you to use it for free access to cash at Wells Fargo ATMs nationwide and for purchases using your PIN.

You can access your account balance and add money to your PolarExpress card through eAccounts, a secure way to check all your stored value accounts (Bearbucks, Munch Money, copy card, etc.), add money to your card, view your transaction history, deactivate a lost or stolen card, and more. Visit https://eacct-ualaska-sp.blackboard.com/eaccountsua/AnonymousHome.aspx.

Police and Fire Departments

The UAF Police Department was founded in 1991 to meet the increasing needs of the university community. Since then it has become a progressive, proactive department striving toward active community involvement as well as the protection of people and property on the Fairbanks campus. In addition to patrol duties, the department makes presentations on topics of importance to the community and supports a college-oriented crime prevention program.

The university emergency communications center serves the Fairbanks campus 24 hours a day. In addition to handling campus law enforcement calls, the center also monitors alarm systems both on and off campus and handles after-hours Facility Services calls. The center employs full-time career dispatchers.

The University Fire Department provides fire, rescue, EMS response, public assistance and hazardous materials response to the Fairbanks campus as well as the University Fire Service Area and Eielson district. The department provides protection for a 26-square-mile area and more than 22,000 people. The department is nationally recognized and staffed full time at two stations, one on campus and one in the fire service area. The department provides plan review and inspection services to the Fairbanks-area and rural campuses. The Fire Department provides exceptional employment and career opportunities for students interested in a career in emergency services. The hands-on, interactive program develops highly skilled individuals able to perform all the duties of professional career firefighters.

The emergency telephone for both police and fire is 911. For more information, call 907-474-7721 for the police department, 907-474-5770.
for the fire department, or visit http://www.uaf.edu/police/ or http://www.uaf.edu/fire/.

**Student Health and Counseling Center**

At the Student Health and Counseling Center, students may receive health care, counseling, substance abuse evaluation and referral, health education and assistance with student health insurance. Students must pay the health center fee to be eligible for these services.

The medical staff provides primary health care and referrals for specialty medical services when appropriate. General office visits for preventive care, illness and injury are provided at no charge. Medications, laboratory services, medical supplies and some physical examinations are provided at reduced cost. Students should call to schedule appointments. Students in emergency situations are usually seen the same day. The counseling staff also provide specialized evaluation and referral for alcohol and other drug problems at no charge when requested on a voluntary basis.

The student health insurance program for international and graduate students on a stipend is administered through the center. An insurance coordinator is available to answer questions about policy coverage and to help with information about how to file claims.

The Student Health and Counseling Center, on the second floor of the Whitaker Building, is open weekdays during the regular academic year and from Monday to Thursday during the summer. For more information, call 907-474-7043 or 474-7045 (TTY), fax 907-474-5777, email uaf-sh-cc@alaska.edu or visit http://www.uaf.edu/chc/.

**Student Services**

Student Affairs provides student-centered programs and services to help students achieve their personal, academic and career goals. In collaboration with the academic deans, Student Affairs leads the university in recruiting a diverse student body. With the creative use of ongoing assessment, Student Affairs supports and develops programs and communities that contribute to the retention, success and leadership development of students.

Student Affairs departments include the Office of Admissions; Associated Students of UAF; Athletics Department; Bookstore; Center for Student Rights and Responsibilities; Department of Military and Veteran Services; Department of Recreation, Adventure and Wellness; Dining Services; Disability Services; Financial Aid; New Student Orientation; Office of the Registrar; Residence Life; Student Health and Counseling Center; Student Leadership Development; Sustainability; and Wood Center.

The Office of the Vice Chancellor for Student Affairs is a resource and referral center where students who don't know where to look for a solution to a problem at UAF will find help. Each department and office has its own web page detailing its student services, or students can visit http://www.uaf.edu/student-affairs/ for a complete list of all departments. For more information contact Student Affairs at uaf-student-affairs@alaska.edu or 907-474-2600.

The Center for Student Rights and Responsibilities is also a resource and referral center where students can get help with concerns, issues or needs. You can get more information at http://www.uaf.edu/csrr/, uaf-studentrights@alaska.edu or 907-474-7317.

**Study Away Programs**

**National Student Exchange**

UAF is a member of the National Student Exchange. Through this program, qualified students may apply for exchange enrollment at any one of almost 200 public colleges and universities throughout the United States, its territories and Canada. NSE enables students to study at member institutions and to take advantage of specialized courses or unique programs. Participation in the program is limited to one year.

Exchanges generally take place during the student's sophomore or junior year. Applicants must have completed a minimum of two full-time semesters at UAF as a degree student and have a minimum 2.5 cumulative GPA. Tuition is assessed by the host institution at the in-state rate, or the student may pay tuition at UAF. The application deadline is Feb. 15 before the term of exchange. For more information, visit http://www.nse.org and contact the NSE coordinator in the Office of International Programs and Initiatives at 907-474-6516 or uaf-studyaway@alaska.edu, or visit http://studyabroad.uaf.edu.

*Note: Students attending any campus of the University of Alaska system under the National Student Exchange program are assumed to be receiving the benefit of reduced tuition because of their enrollment at an NSE partner university in another state. Therefore, time spent in NSE does not count toward the time required to establish residency in Alaska for tuition purposes. If students end their participation in NSE, they could begin establishing residency for tuition purposes as set forth in the UA Resident and Nonresident Tuition policy (p. 58) on the Tuition and Fees page.*

**Study Abroad And International Exchange Programs**

Studying abroad or participating in an international exchange or internship is an excellent opportunity for every UAF student to learn about other cultures and gain international experience while earning academic credit. Students participating in approved international exchange, study abroad or internship programs enroll at UAF and receive UAF credit. The Alaska Student Loan and most other forms of financial aid may be used to cover costs of international academic programs; scholarships are also available for many programs. Students interested in gaining international experience should begin planning early in their UAF careers, particularly because prior study of a foreign language may be required for some programs and is highly recommended for others. Applicants must have completed a minimum of two full-time semesters at UAF as a degree student and have a minimum 2.5 cumulative GPA. Other requirements may also apply, and all applications are subject to approval by the Office of International Programs and Initiatives. Application deadlines are Oct. 1 for spring semester programs and March 1 for summer, fall semester or academic-year programs.

Students approved to participate in study abroad or exchange programs pay a $300 study abroad fee to UAF each semester they are abroad. For study abroad programs, all tuition, housing and student fees are paid directly to the program provider or host institution. Students participating...
in exchange programs pay for 15 credits of undergraduate or 9 credits of graduate UAF tuition, the UAF technology fee and a 4 percent of tuition network fee in addition to the $300 study abroad fee. Tuition and fees are assessed on a semester basis.

UArctic organizes north2north, one of UAF’s student exchange programs. Programs are focused on studies in and of the North and are designed to enhance the Arctic perspective of UAF academic programs.

Programs are available in more than 70 countries worldwide.

Contact International Programs and Initiatives for more information at 907-474-6516 or uaf-studyaway@alaska.edu, or visit http://studyabroad.uaf.edu.

**Summer Sessions & Lifelong Learning**

Summer Sessions & Lifelong Learning provides a variety of academic opportunities. Courses are open to undergraduate and graduate students seeking degrees and to professionals renewing their licenses, as well as community members and qualifying high school students. Summer programs begin with MAYmester, a two-week intensive term where students can earn up to 3 credits. This is followed by a 12-week session that runs concurrently with two six-week sessions.

In the fall and spring, SSLL offers courses in the Weekend College. In early January, WINTERmester offers credit and noncredit classes in a two-week intensive session, giving students the opportunity to earn up to 3 credits before spring semester begins. Professional and continuing education courses are offered throughout the year.

In addition to standard collegiate academic programs, weekend focus and special interest classes, for credit and noncredit, are offered to community members and college students. Campus activities for youth include summer day camps for school-age children, business and leadership training, and the Visual Art Academy. Summer Sessions also houses the Osher Lifelong Learning Institute, which offers opportunities for continued learning for adults 50 and older.

Each summer SSLL hosts free lectures, concerts and recreational activities for students and community members. In January, a community lecture is associated with WINTERmester.

SSLL educational travel programs take groups overseas several times each year to study the cultural, political and natural history of destination countries.

For more information, contact Summer Sessions & Lifelong Learning, 216 Eielson Building, phone or text 907-474-7021, toll free at 866-404-7021, email summer@uaf.edu, or visit http://www.uaf.edu/summer/.

**Technology on Campus**

The Office of Information Technology operates Tech Central in the Bunnell Building on the Fairbanks campus, where students can get free help with their laptops and other devices.

Another popular stop is the OIT service desk, your gateway to many of the other services OIT offers UAF students, faculty and staff. The service desk has two walk-up locations — 231 Bunnell and 102 Butrovich — and can be contacted by calling 907-450-8300 or 800-478-8226, emailing helpdesk@alaska.edu, or visiting http://www.alaska.edu/oit/get-help/.

**Internet Access, Computing Labs and Smart Classrooms**

Wireless internet is available in most public areas and in all buildings on the Fairbanks campus. The residence halls can also connect via wired access.

There are two student computer labs, one in 404 Rasmuson and another 110 Moore-Bartlett-Skarland. There’s also the Nook, in Bunnell 319, a collaborative space that offers a variety of seating options with power outlets, virtual computer stations, wired and wireless network access for student devices, mobile printing, and conference tables where students can share content on their devices with others on a large screen.

On the Fairbanks campus there are 80 smart rooms (classrooms, auditoriums and lab spaces), furnished with instructional technologies such as in-room computers, digital projectors, DVD playback devices, document cameras and digital monitors. Five of these smart classrooms are equipped with automated lecture capture/recording.

**Video Conferencing**

OIT’s Video Conferencing Services provides consultation, planning, installation, training and scheduling for videoconferencing classrooms and other video-enabled rooms on the Fairbanks campus and across the University of Alaska system. VCS can schedule and support job interviews for students, faculty and staff. For more information visit http://www.alaska.edu/oit/services/video-conferencing/.

**Testing Services**

As a national test center, UAF Testing Services administers paper-and-pencil and computer-based exams. The office advises UAF students, prospective students and the community on national testing matters for college admissions and placement and for career and professional certification. Testing Services also coordinates credit by examination for local tests and for the College-Level Examination Program. The office also does private proctoring. For more information and registration materials, visit Testing Services in 211 Grunenning Building, call 907-474-5277, email uaf-testing-dept@alaska.edu or visit http://www.uaf.edu/testing/.

**Undergraduate Research and Scholarly Activity**

As a research university, UAF offers students opportunities to participate in experimental and observational research and creative activities. The Office of Undergraduate Research and Scholarly Activity supports, develops, documents and institutionalizes UAF’s diverse and robust programs of undergraduate research and scholarly activity. Building on existing efforts and capacities, URSA enables UAF students to pursue varying levels of research engagement, including independent scholarly investigations, a B.F.A. exhibit or performance, and/or a senior thesis.

**Eligibility**

Undergraduate students from all disciplines are eligible to engage in research or creative activity for academic credit or for pay. All UAF students are eligible to enroll in URSA courses and apply for URSA awards that support their research or creative projects with funding.
for travel, supplies, and stipends. First-year students and new transfer students are encouraged to attend the UAF Research and Creative Activity Day or contact the URSA office to learn about research and creative opportunities across all disciplines at UAF. Students can use URSA as a resource to help find a faculty mentor with whom they might work on a research or creative project. The project may be designed by the student or the faculty mentor and will lead to creation of new information.

For more information contact the URSA office at 301 Bunnell Building, 907-450-8772 or ursa.uaf@alaska.edu, or visit http://www.uaf.edu/ursa/.

**Upward Bound**

The goal of the Upward Bound College Bound program is improving the graduation rates of high school students and increasing the number of UB College Bound graduates who enter colleges and universities. UB College Bound offers two strands: a school year program that works with 10 high schools in Alaska, called “target schools,” along with three distinct six-week summer residential programs held on the UAF campus: UB College Bound (freshman/sophomore), Pre-College Academy (juniors), and the Pathways-2-College bridging program (graduating seniors).

Upward Bound College Bound serves 160 low-income, first-generation college students who demonstrate potential for academic success and whose parents have not earned college degrees. Services offered in target schools include tutorial sessions; educational, recreational or cultural events; group activities; exploration of postsecondary education opportunities and visits to campuses; financial aid application assistance; and participation in the six-week summer program on the Fairbanks campus.

The residential summer program emphasizes academic development for 50 students selected for participation from the target schools. The summer experience helps UB students become familiar with the Fairbanks campus, residence life, services provided and, most importantly, places an emphasis on academic development and growth.

Participation in this program is only available to active UB College Bound target school participants. Upward Bound College Bound is a federally funded program.

For more information, call 907-474-5685 or email ub.classic@alaska.edu.

**Wood Center**

The William Ransom Wood Center, under the Division of Student Affairs, is the focal point of campus activities and services for the university and Fairbanks communities.

Services at Wood Center include event scheduling, campus information, dining facilities, meeting rooms, laundry and shower facilities, and a recreation area with pool tables, video games and a bowling alley. Wood Center also has the campus lost-and-found center, an ATM, and tickets to cultural and sporting events.

Wood Center is home to the Student Activities Office, which oversees Nanook Traditions. Student Activities organizes events designed to entertain, educate and inspire the UAF community. Nanook Traditions are among UAF’s most highly anticipated annual events. These include the Starvation Gulch bonfires in September, Winter Carnival in February and SpringFest in late April. For more information visit http://www.uaf.edu/activity/.

The Student Leadership and Involvement program provides opportunities for students to learn about and practice leadership skills and become involved on campus and in the community. Through the SLI program students can complete and earn Co-Curricular Opportunities for Leadership Development certificates. The COLD certificates provide tangible ways for students to be recognized for leadership development within the UAF community and beyond. Students who complete the COLD certificate are eligible for graduation with leadership honors and/or distinction. To find out more about SLI, visit the Wood Center or online at http://www.uaf.edu/SLI/.

The Nanook Diversity and Action Center promotes a community of inclusion, social justice and cultural pluralism by providing educational activities in collaboration with student organizations that honor and support areas of age, gender, religion, ability, socioeconomic status, race, ethnicity, culture, sexual orientation and gender expression. Additionally, NDAC focuses on prevention and awareness efforts, including Take Back the Night, Green Dot Bystander Intervention, and Sexual Assault Awareness Month.

The Resource and Advocacy Center at UAF provides advocacy and resources referral to students, staff and faculty survivors of power-based personal violence. The office is staffed by a confidential Advocacy Services Coordinator and volunteers. The center provides a confidential resource on campus for survivors. The coordinator is a full-time staff member of the Interior Alaska Center for Non-Violent Living. For more information, contact the center in 130 Wood Center, by phone at 907-474-6360 or email uafadvocate@iacnvl.org.

More than 140 student organizations (http://www.uaf.edu/live/clubs/list) are active on campus, including clubs, honor societies and Greek life organizations. Membership in a student organization can help you make social connections. It can also help in career and leadership development and enhance your resume. Each semester a student organizations fair provides an opportunity to learn more about these diverse groups. You can also contact the SLI program office to learn more about UAF student organizations.

The Wood Center Pub offers evening entertainment for those 21 and older with live music, an open mic night, movies, trivia games and karaoke. Special events include theme nights, beer and wine tastings, comedy performances, casino night and more.

For more information call 907-474-7034 or visit http://www.uaf.edu/woodcenter/.
HOW TO EARN AN OCCUPATIONAL ENDORSEMENT

To earn a UAF occupational endorsement, you must satisfy three sets of requirements: general university requirements; occupational endorsement and program (major) requirements. These requirements are all described in this section of the catalog. Requirements for your major are found in the Occupational Endorsement Programs (p. 84) section.

If your endorsement program is delivered collaboratively within the UA system (e.g., information technology specialist, early childhood education, human services and rural human services), then the credits you earn from each UA institution will be counted toward fulfillment of the program requirements and fulfillment of the minimum institutional residency requirements. Institutional residency requirements are the minimum number of credits you must earn from the campus where you earn a degree.

Occupational Endorsements

Occupational endorsement programs are designed to give students occupational training in a specific field. These programs are 9-29 credit hours and will be posted to the student’s transcript upon completion and after approval by the academic department. The credit hours may be applied to other undergraduate degree programs where applicable.

General University Requirements

You must earn at least 9 semester credits at the 100 level or above for an occupational endorsement. At least 30 percent of the program must be earned at UAF. A minimum of a 2.0 cumulative GPA is required in all work as well as in your major field. In addition, you must earn a minimum C- grade in courses required for your occupational endorsement. Some programs may require higher GPAs for major course work.

Unless otherwise specified by the appropriate academic unit, a course may be taken more than once toward fulfilling endorsement requirements. However, credit hours for such courses count only once toward total credits required for the endorsement.

Students seeking an occupational endorsement do not apply for graduation. Certifying that you have met all major requirements is the responsibility of your department faculty, who will notify the Office of the Registrar.

If you want to use correspondence study credits from a school other than UAF to satisfy degree requirements, you must have the approval of those courses by the dean of the school or college from which you will graduate; otherwise, you take the risk the courses will not be accepted.

RESIDENCE CREDIT

Residence credit is course credit earned through any unit of UAF. Formal classroom instruction, correspondence study, distance-delivered courses, individual study or research at UAF are all considered residence credit. On the other hand, transfer credit, advanced placement credit, credit for prior learning, military service credit and credit granted through nationally prepared examinations are not considered residence credit, nor are credit-by-examination credits earned through locally prepared tests. None of these types of credit can be applied to UAF residency requirements.

RESIDENCY REQUIREMENT

Most universities have residency requirements that call for a certain number of credits toward a degree to be earned at the degree-granting school. At UAF, the residency requirement for occupational endorsements is 30 percent of the program.

Occupational Endorsement Requirements

In order to earn an occupational endorsement, students must be admitted to the program and complete the requirements listed in the program section of this chapter. A minimum of 9 credits is required to earn an occupational endorsement. At least 30 percent of the program must be completed in residence at UAF. Additional residency credit requirements may be established to meet discipline or accreditation standards.

You must have a cumulative GPA of at least 2.0 in all course work. Some occupational endorsement programs require higher GPAs.

Students may elect to complete their program under the requirements of the catalog in effect at the time of formal acceptance to an occupational endorsement program or the catalog in effect at the time of completion. If the requirements for the occupational endorsement are not met within five years of formal acceptance into the program, admission expires and the student must reapply for admission and meet the admission and program requirements in effect at the time of formal acceptance. Program requirements may require completion in less than five years.

Students may earn more than one occupational endorsement by completing all requirements for each additional program. Additional occupational endorsements must differ by 3 or more credits.

See a list of all Occupational Endorsement programs here. (p. 84)

Occupational Endorsement Programs

Administrative Assistant

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/aaa/

Occupational Endorsement

The administrative assistant occupational endorsement may be earned in one semester and represents a large portion of the course work required for the applied business management certificate. Students must complete all courses with a grade of C- or better and satisfactorily complete a two-week practicum at the culmination of training in order to earn the endorsement. This program is open to those who have completed the university application process and are at an appropriate English level for ABUS F170 (as shown by English placement scores). Applicants must be 16 years old to be admitted.

Complete the following admissions requirement:

- Be at least 16 years old by the first day of the semester in which you are admitted.

Minimum Requirements for Occupational Endorsement: 16 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
</tbody>
</table>

Complete the general university requirements. (p. 84)
Occupational Endorsement Requirements
Complete the occupational endorsement requirements. (p. 84)

Program Requirements
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F102A</td>
<td>Keyboarding: Touch Typing</td>
<td>1</td>
</tr>
<tr>
<td>or ABUS F102C</td>
<td>Keyboarding: Document Formatting</td>
<td></td>
</tr>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F170</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F271</td>
<td>Business Communications</td>
<td></td>
</tr>
<tr>
<td>ABUS F182</td>
<td>Office Procedures</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F183</td>
<td>Professional Skills for Job Hunt</td>
</tr>
<tr>
<td>ABUS F199</td>
<td>Practicum in Applied Business</td>
</tr>
<tr>
<td>CIOS F130</td>
<td>Microcomputer Word Processing</td>
</tr>
<tr>
<td>CIOS F135</td>
<td>Microcomputer Spreadsheets</td>
</tr>
<tr>
<td>CIOS F150</td>
<td>Computer Business Applications</td>
</tr>
</tbody>
</table>

Occupational Endorsement

The bookkeeping technician occupational endorsement provides students with the education and training to qualify for bookkeeper positions in both small and large businesses. The occupational endorsement may be earned in one semester and represents one-half of the credits required for the accounting technician certificate. This program is open to students with a high school diploma or GED. Applicants must be 16 years old to be admitted.

Minimum Requirements for Occupational Endorsement: 15 credits
Students must earn a C- grade or better in each course.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CTT F100</td>
<td>Construction Technology Core</td>
</tr>
<tr>
<td>or CTT F101</td>
<td>Basic Construction Safety</td>
</tr>
<tr>
<td>and CTT F102</td>
<td>and Introduction to Hand and Power Tools</td>
</tr>
<tr>
<td>and CTT F103</td>
<td>and Introduction to Blueprint Reading</td>
</tr>
<tr>
<td>CTT F106</td>
<td>Construction Mathematics</td>
</tr>
<tr>
<td>CTT F110</td>
<td>Residential Carpenter I</td>
</tr>
<tr>
<td>or CTT F111</td>
<td>Materials and Tools Used in the Trade</td>
</tr>
<tr>
<td>and CTT F112</td>
<td>and Floor Systems, Wall and Ceiling Framing</td>
</tr>
<tr>
<td>and CTT F113</td>
<td>and Roof Framing, Windows and Exterior Doors</td>
</tr>
<tr>
<td>and CTT F114</td>
<td>and Introduction to Concrete Materials and Forms</td>
</tr>
</tbody>
</table>

Facility Maintenance

The facility maintenance program trains participants in dealing with challenges unique to rural Alaska structures. Training consists of identifying, troubleshooting and customizing solutions to a building or home, learning the importance of working with community advocates, tracking and analyzing past maintenance trends, and developing strategies for future maintenance needs. Applicants must be 16 years old to be admitted.

Complete the following admissions requirement:

• Be at least 16 years old by the first day of the semester in which you are admitted.

Minimum Requirements for Occupational Endorsement: 14.5 credits
Students must earn a C- grade or better in each course.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ABUS F101</td>
<td>Principles of Accounting I</td>
</tr>
<tr>
<td>ABUS F141</td>
<td>Payroll Accounting</td>
</tr>
<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
</tr>
<tr>
<td>ABUS F203</td>
<td>Accounting Capstone</td>
</tr>
<tr>
<td>ABUS F220</td>
<td>Microcomputer Accounting: QuickBooks</td>
</tr>
</tbody>
</table>

Carpentry, Basic

The occupational endorsement in basic carpentry is the beginning for both a career in the construction industry and pursuing a certificate and degree in construction trades technology. Training consists of basic construction safety, introduction to hand and power tools, construction mathematics, floor systems, roof framing, and window and exterior door installation. Students develop a basic understanding of how to communicate, understand, anticipate and complete the work on a construction job site. Applicants must be 16 years old to be admitted.

Complete the following admissions requirement:

• Be at least 16 years old by the first day of the semester in which you are admitted.
Minimum Requirements for Occupational Endorsement: 12 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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<tr>
<td></td>
<td>Complete the general university requirements. (p. 84)</td>
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<tr>
<td></td>
<td>Occupational Endorsement Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>CTT F130</td>
<td>Introduction to Facilities Maintenance</td>
<td>1</td>
</tr>
<tr>
<td>CTT F131</td>
<td>Interior Repairs: Drywall, Woodwork Trim, Window Replacement</td>
<td>1</td>
</tr>
<tr>
<td>CTT F132</td>
<td>Flooring Installation: Vinyl, Wood and Parquet</td>
<td>1</td>
</tr>
<tr>
<td>CTT F133</td>
<td>Cabinet Installation with Countertops</td>
<td>1</td>
</tr>
<tr>
<td>CTT F135</td>
<td>Boiler Troubleshooting and Burner Repair</td>
<td>2</td>
</tr>
<tr>
<td>CTT F137</td>
<td>Appliance Troubleshooting and Repair</td>
<td>2</td>
</tr>
<tr>
<td>CTT F138</td>
<td>Residential Heating Controls</td>
<td>2</td>
</tr>
<tr>
<td>CTT F151</td>
<td>Introduction to Plumbing Tools and Drawings</td>
<td>1</td>
</tr>
<tr>
<td>CTT F153</td>
<td>Plastic and Copper Pipe and Fittings</td>
<td>1</td>
</tr>
</tbody>
</table>

Financial Services Representative
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/abus/

Occupational Endorsement
The financial services representative program provides education and training to qualify students for customer service and teller positions in banks, credit unions and other financial institutions. This 15-credit occupational endorsement may be earned in one semester and represents half the credits required for the applied business management certificate in finance. Upon completion of the course work, students may enroll in BA F253 for an optional additional 1-3 credits and get practical work experience in a financial institution.

This program is open to students who can document a high school diploma or GED. To be hired in any financial institution, graduates must be able to pass credit and criminal background checks. Applicants must be 16 years old to be admitted.

Complete the following admissions requirement:

• Be at least 16 years old by the first day of the semester in which you are admitted.

Minimum Requirements for Occupational Endorsement: 15 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
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<td>Occupational Endorsement Requirements</td>
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<tr>
<td></td>
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Program Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F233</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F155</td>
<td>Business Math (or MATH F100-level or above)</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F175</td>
<td>Customer Service</td>
<td></td>
</tr>
<tr>
<td>Complete 6 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS F160</td>
<td>Principles of Banking</td>
<td></td>
</tr>
<tr>
<td>ABUS F161</td>
<td>Personal and Business Finance</td>
<td></td>
</tr>
<tr>
<td>ABUS F234</td>
<td>Introduction to Investing</td>
<td></td>
</tr>
</tbody>
</table>

Health, Allied
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/health/

Occupational Endorsement
The occupational endorsements in allied health give students the knowledge and technical skills for employment in health care. Occupational endorsements are available in medical billing, medical coding, medical office reception and nurse aide.

Special admission, licensing or certification requirements may apply to students in this program. Applicants should familiarize themselves with these and speak with a faculty advisor if they have any questions or concerns.

MEDICAL BILLING AND MEDICAL CODING
The occupational endorsements in medical billing and medical coding prepare students for employment in medical offices, clinics, hospitals and other medical facilities. Students in the program learn analysis of medical records and the assigning of codes for indexing diagnoses and procedures to provide information for reimbursement purposes.

MEDICAL OFFICE RECEPTION
Students receive education in the theory and skills for both office work and clinical care. Prerequisites for the program include a high school diploma or GED.

NURSE AIDE
The nurse aide occupational endorsement provides education and training to students in theory and basic nursing skills necessary to become efficient and productive health care team members. Students who successfully complete the program will be prepared to sit for the national nurse aide examination for certification. This program is open to those who can document a high school diploma or GED and 10th-grade reading level by exam, or who have the instructor’s permission. Students must also be in good physical condition (capable of repeatedly lifting 50 pounds) and have the following immunizations: hepatitis B full series, two MMRs, chickenpox vaccine (or titer to prove immunity to MMR/chickenpox) and have a negative PPD for tuberculosis within the past year.

PHLEBOTOMY
Training is also available in phlebotomy. UAF does not award degree certificates or endorsements in phlebotomy, but a student who completes the phlebotomy course may sit for national certification
through the American Society for Clinical Pathology to become a certified phlebotomy technician.

Students wishing to enroll in phlebotomy must have documentation of antibody titer for hepatitis B, current immunizations or titers to measles, mumps, rubella, varicella, flu shot if required by site and a completed two-step PPD (Purified Protein Derivative) for tuberculosis within the past year, prior to registering for the class. Additional immunizations may be necessary as required by the externship site. Students must submit documentation of a background check administered through the Alaska State Troopers with the completed application.

Information on any of the allied health programs is available from the Allied Health Division at the Community and Technical College, PO Box 758040, Fairbanks, AK 99775; by calling 907-455-2822; by email at fyhealth@uaf.edu; or at http://www.ctc.uaf.edu/health/.

Complete the following admissions requirement:

- Be at least 16 years old by the first day of the semester in which you are admitted.

### Occupational Endorsement Programs

- Medical Billing (p. 87)
- Medical Coding (p. 87)
- Medical Office Reception (p. 87)
- Nurse Aide (p. 87)

#### O.E.C., Medical Billing

**Minimum Requirements for Endorsement: 12 credits**

Students must earn a C- or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIOS F150</td>
<td>Computer Business Applications (or documentation of computer skills and approved elective)</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F100</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F208</td>
<td>Human Diseases</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F235</td>
<td>Medical Coding</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Must complete HLTH F235 with a B grade or better.

### O.E.C., Medical Office Reception

**Minimum Requirements for Endorsement: 12 credits**

Students must earn a C- or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
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<td>Computer Business Applications (or documentation of computer skills and approved elective)</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F100</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F110</td>
<td>Professional Skills for the Workplace</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F118</td>
<td>Medical Law and Ethics</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F132</td>
<td>Administrative Procedures I</td>
<td>2</td>
</tr>
</tbody>
</table>

### O.E.C., Nurse Aide

**Minimum Requirements for Endorsement: 9 credits**

Students must earn a C- or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLTH F107</td>
<td>Nurse Aide Training</td>
<td>9</td>
</tr>
<tr>
<td>or HLTH F111 and HLTH F113</td>
<td>Personal Care Attendant Training and Personal Care Attendant to Nursing Assistant Bridge</td>
<td></td>
</tr>
</tbody>
</table>

### Homeland Security

School of Management
907-474-7461

Admission to this program is currently suspended.

### Occupational Endorsement

**Minimum Requirements for Occupational Endorsement: 12 credits**
The occupational endorsement in homeland security provides the basic academic preparation and sought after critical thinking skills necessary for mid-level careers in the TSA agency or homeland security field while also serving as a stepping-stone into a homeland security and emergency management-related degree programs such as the HSEM bachelor’s degree at SOM. Applicants must be 18 years old to be admitted.

Admission to this program is currently suspended.

Complete the following admission requirement:

- Be at least 18 years old by the first day of the semester in which you are admitted.

Admission to this program is currently suspended.

Minimum Requirements for Occupational Endorsement: 12 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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<tr>
<td></td>
<td>Complete the general university requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupational Endorsement Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>HSEM F120</td>
<td>Introduction to Emergency Management</td>
<td>3</td>
</tr>
<tr>
<td>or HSEM F121</td>
<td>Introduction to Homeland Security</td>
<td></td>
</tr>
</tbody>
</table>

Complete at least 9 credits from the following:

- HSEM F223: Terrorism: A Global Threat
- HSEM F225: Intelligence Analysis and Security Management
- HSEM F227: Transportation and Border Security
- HSEM F231: The Threat of Weapons of Mass Destruction
- HSEM F233: Critical Infrastructure Protection

Law Enforcement Academy

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/lawacad/

Alaska Police Standards Council Certification

The Law Enforcement Academy prepares students for a career in law enforcement in the state of Alaska. APSC certification will allow a qualified candidate to work as a commissioned officer in any of approximately 65 state and municipal law enforcement organizations.

The law enforcement academy is an intense semester of full-time study. Students attend class 40 hours per week for one semester. The certification is approved by the Alaska Police Standards Council in compliance with Title 13.85.050 of the Alaska Administrative Code. Courses are not offered separately but must be taken as part of the entire law enforcement academy package.

Special admission, licensing or certification requirements may apply to students in this program. Applicants should familiarize themselves with these and speak with a faculty advisor if they have any questions or concerns. Applicants must be 21 years old to be admitted.

Complete the following admissions requirement:

- Be at least 21 years old by the first day of the semester in which you are admitted.

LAW ENFORCEMENT CERTIFICATION BY THE ALASKA POLICE STANDARDS COUNCIL

Minimum Requirements for Certification: 16 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE F110</td>
<td>Cultural and Behavioral Strategies for Law Enforcement Officers</td>
<td>1</td>
</tr>
<tr>
<td>LE F115</td>
<td>Enforcement Skills for Law Enforcement Officers</td>
<td>3</td>
</tr>
<tr>
<td>LE F120</td>
<td>Law Enforcement Operations</td>
<td>4</td>
</tr>
<tr>
<td>LE F125</td>
<td>Basic Police Procedures</td>
<td>4</td>
</tr>
<tr>
<td>LE F205</td>
<td>Criminal Law for Police</td>
<td>4</td>
</tr>
</tbody>
</table>

Mining Mill Operations

Community and Technical College
907-455-2800
https://www.ctc.uaf.edu/programs/process-technology/

Occupational Endorsement

The occupational endorsement in mining mill operations provides education and training in the skills and knowledge required of a mining mill operator.

This program is open to those who have a high school diploma or GED.

Minimum Requirements for Occupational Endorsement: 17 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupational Endorsement Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>PRT F110</td>
<td>Introduction to Occupational Safety, Health and Environmental Awareness</td>
<td>3</td>
</tr>
<tr>
<td>PRT F140</td>
<td>Industrial Process Instrumentation I</td>
<td>3</td>
</tr>
<tr>
<td>AMIT F129</td>
<td>Surface Mine Safety</td>
<td>1</td>
</tr>
<tr>
<td>AMIT F130</td>
<td>Surface Mining Operations</td>
<td>3</td>
</tr>
<tr>
<td>AMIT F135</td>
<td>Introduction to Mining Systems and Equipment</td>
<td>4</td>
</tr>
<tr>
<td>AMIT F145</td>
<td>Introduction to Mineral Beneficiation</td>
<td>3</td>
</tr>
</tbody>
</table>

Paramedic Academy

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/paramedic/
The paramedic academy prepares students to take the national paramedic exam. A passing score qualifies students to apply for a paramedic license through the Alaska State Medical Board.

The paramedic academy offers the highest level of education available to prepare for work in the pre-hospital environment. The most common entry-level positions for paramedics are in an ambulance within an emergency response system or in a nonemergency transport service. Paramedics also work in doctors’ offices, urgent care clinics, hospital emergency rooms, intensive care units, laboratories, aeromedical transport services, and safety departments in corporate and industrial settings.

UAF’s paramedic academy offers an intensive three-semester course of full-time study. Students may apply their paramedic course credits to more advanced degrees, including the A.A.S. in emergency services.

The paramedic academy meets or exceeds the national standards curriculum for the EMT-paramedic. During the first two semesters, the student will complete 500 hours of classroom education and 250 hours of clinical experience. The clinical component includes rotations in a hospital setting, including placements in respiratory therapy and in the emergency room, operating room and intensive care unit. In the third semester the student will complete a field internship outside Alaska with an ambulance company supervised by paramedic field preceptors. During the internship the student is responsible for all costs of housing, travel and living expenses in addition to tuition and fees.

The paramedic student should be emotionally stable and have good dexterity, agility and physical coordination. Paramedics must also have the strength to lift and carry heavy loads.

Special admission, licensing or certification requirements may apply to students in this program. Applicants should familiarize themselves with these and speak to a faculty advisor if they have questions or concerns.

Complete the following admissions requirements:

- Be at least 18 years old by the first day of the semester in which you are admitted.

Application packets for the paramedic academy may be obtained from the Community and Technical College at 907-455-2853 or jrodriguez14@alaska.edu. Applications will be reviewed by CTC’s Paramedic Academy Advisory Board. In keeping with certification requirements, class size is limited to 25 students. Applicants must have a current EMT basic certification (or have completed requirements, class size is limited to 25 students. Applicants must have a Paramedic Academy Advisory Board. In keeping with certification requirements, class size is limited to 25 students. Applicants must have a current EMT basic certification (or have completed requirements, class size is limited to 25 students. Applicants must have a current EMT basic certification (or have completed requirements. In the delivery of village-based human services are recommended but not required.

This program is delivered collaboratively within the UA system. Applicants must be 18 years old to be admitted.

Complete the following admissions requirement:

- Be at least 18 years old by the first day of the semester in which you are admitted.

Minimum Requirements for Occupational Endorsement: 16 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHS F110</td>
<td>Cross-cultural Bridging Skills</td>
<td>1</td>
</tr>
<tr>
<td>RHS F115</td>
<td>Issues of Personal Development</td>
<td>2</td>
</tr>
<tr>
<td>RHS F120</td>
<td>Family Systems I</td>
<td>2</td>
</tr>
<tr>
<td>RHS F130</td>
<td>Processes of Community Change</td>
<td>2</td>
</tr>
<tr>
<td>RHS F140</td>
<td>Alaska Native Values and Principles</td>
<td>1</td>
</tr>
<tr>
<td>RHS F150</td>
<td>Introduction to Rural Counseling</td>
<td>2</td>
</tr>
<tr>
<td>RHS F260</td>
<td>Addictions: Intervention and Treatment</td>
<td>2</td>
</tr>
<tr>
<td>RHS F275</td>
<td>Introduction to Recovery and Mental Illness</td>
<td>2</td>
</tr>
<tr>
<td>RHS F285</td>
<td>Case Management</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: See your advisor if you are not sure which catalog year to use.

Rural Surface Water Quality Testing

College of Rural and Community Development
907-474-5029

Occupational Endorsement

The rural human services program is designed to develop strong and healthy rural Alaska Native individuals, families and communities. The program provides entry-level training and education for students preparing for careers as natural helpers/healers in village-based public, private and volunteer human service organizations.

The endorsement meets the training requirements for Behavioral Health Aide I credentials as developed by the Alaska Native Tribal Health Consortium. The occupational endorsement program directly parallels the entry-level competencies training required under these systems.

Admission is open to anyone employed by a regional Native health corporation or local entity providing village-based human services, or to individuals recognized by their communities as natural helpers/healers. A high school diploma or GED and/or previous training or work experience in the delivery of village-based human services are recommended but not required.

Complete the following admissions requirement:

- Be at least 18 years old by the first day of the semester in which you are admitted.

http://www.uaf.edu/rhs/
level water quality technician careers. Students gain a foundation of knowledge that prepares them to continue into science and engineering-related certificate, associate or baccalaureate programs.

Admission is open to students with a high school diploma or GED.

**Minimum Requirements for Occupational Endorsement: 9 credits**
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupational Endorsement Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the following:</td>
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</tr>
<tr>
<td></td>
<td>ABUS F183 Professional Skills for Job Hunt</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>CIOS F150 Computer Business Applications</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>ENVI F101 Introduction to Environmental Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENVI F110 Introduction to Water Quality I: Measurement</td>
<td>1</td>
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<tr>
<td></td>
<td>ENVI F111 Introduction to Water Quality II: Monitoring and Assessment</td>
<td>1</td>
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<td></td>
<td>ENVI F112 Introduction to Water Quality III: Data Quality Assurance</td>
<td>1</td>
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<tr>
<td></td>
<td>ENVI F160 Internship in Environmental Studies</td>
<td>1-2</td>
</tr>
</tbody>
</table>

**Rural Waste Management and Spill Response**

College of Rural and Community Development
Bristol Bay Campus
907-842-5109
http://www.uaf.edu/rural/

**Occupational Endorsement**
The occupational endorsement in rural waste management and spill response provides education and training in how to handle management municipal waste. Emphasis is placed upon providing students with the skills and experience necessary to implement solutions to challenging solid waste stream issues facing rural waste managers. The program introduces students to best practices in waste management that are in compliance with state and federal governmental regulations. Exceptional focus is placed on workplace safety and students are assessed on proficiency in operational safety and safety planning. Upon completion of the occupational endorsement, students will be prepared to help protect rural communities from many of the environmental risks associated with waste disposal by safely managing municipal solid and hazardous waste streams.

Complete the following admissions requirement:

- Be at least 16 years old by the first day of the semester in which you are admitted.

**Minimum Requirements for Occupational Endorsement: 10 credits**
Students must earn a C- or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupational Endorsement Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ABUS F183 Professional Skills for Job Hunt</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ENVI F110 Introduction to Water Quality I: Measurement</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ENVI F115 Rural Solid and Hazardous Waste Management</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ENVI F116 Rural Alaska Landfill Operator</td>
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<tr>
<td></td>
<td>ENVI F117 Community Spill Response</td>
<td>1</td>
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<tr>
<td></td>
<td>FIRE F110 Introduction to Hazardous Waste Operations and Emergency Response</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete 2 credits from the following:</td>
<td></td>
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<tr>
<td></td>
<td>CIOS F135 Microcomputer Spreadsheets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CTT F130 Introduction to Facilities Maintenance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVI F130 Introduction to the National Environmental Policy Act</td>
<td></td>
</tr>
</tbody>
</table>
Supervision and Personnel Management

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/

Occupational Endorsement

The occupational endorsement for supervision and personnel management provides education and training to students to qualify for managerial and supervisory leadership positions in both small and large businesses, government, nonprofit and education settings. This 15-credit occupational endorsement may be earned in one or two semesters and represents a large portion of the education required for the applied business management certificate. Students must complete all courses with a grade of C or better in order to earn the endorsement.

This program is open to those who have completed the university application process.

Minimum Requirements for Occupational Endorsement: 15 credits
Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 84)</td>
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<td>Occupational Endorsement Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F179</td>
<td>Fundamentals of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F231</td>
<td>Introduction to Personnel</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F232</td>
<td>Contemporary Management Issues</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F242</td>
<td>Employment Law</td>
<td>3</td>
</tr>
</tbody>
</table>

1 ABUS F231 is a variable credit course. Students must take a total of 3 credits.

Sustainable Energy

College of Rural and Community Development
907-474-7143
http://www.uaf.edu/rural/

Occupational Endorsement

Providing education and training in energy efficiency and renewable energy, the sustainable energy occupational endorsement addresses many of the energy issues that influence Alaska communities and provides the basic academic preparation for entry-level sustainable energy careers. It also serves as a steppingstone into science- and engineering-related certificate, associate or bachelor’s programs.

The program is structured as 6 credits of foundation knowledge and a minimum of 6 credit electives that allow students (in consultation with their advisor) to specialize in specific areas of sustainable energy. Some examples of how the electives can be formed into specific areas of study follow. Applicants must be 16 years old to be admitted.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupational Endorsement Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>ENVI F220</td>
<td>Introduction to Sustainable Energy</td>
<td>3</td>
</tr>
<tr>
<td>Complete one of the following:</td>
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<tr>
<td>CTT F106</td>
<td>Construction Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>DEVM F105</td>
<td>Intermediate Algebra</td>
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<tr>
<td>TTCH F131</td>
<td>Mathematics for the Trades</td>
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</tr>
<tr>
<td>Electives</td>
<td>Complete 6 credits from the following:</td>
<td>6</td>
</tr>
</tbody>
</table>
Tribal Justice

College of Rural and Community Development
907-474-7143
http://tribal.uaf.edu/

Occupational Endorsement

The occupational endorsement in tribal justice provides education specific to tribal courts and tribal justice in Alaska, preparing tribal court judges, clerks and administrators for employment in the tribal justice field. The endorsement also provides a pathway for continuing education for tribal justice professionals in Alaska. Applicants must be 16 years old to be admitted.

Complete the following admissions requirement:

• Be at least 16 years old by the first day of the semester in which you are admitted.

Minimum Requirements for Occupational Endorsement: 9 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM F110</td>
<td>Tribal Court Development for Alaska Tribes</td>
<td>1</td>
</tr>
<tr>
<td>TM F111</td>
<td>Children’s Topics in Tribal Justice</td>
<td>1</td>
</tr>
<tr>
<td>TM F112</td>
<td>Federal Indian Law for Alaska Tribes</td>
<td>1</td>
</tr>
<tr>
<td>TM F113</td>
<td>Tribal Code Development</td>
<td>1</td>
</tr>
<tr>
<td>TM F114</td>
<td>Tribal Justice Responses to Community and Domestic Violence</td>
<td>1</td>
</tr>
<tr>
<td>TM F115</td>
<td>Tribal Court Administration</td>
<td>1</td>
</tr>
</tbody>
</table>

Welding, Entry-level

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/weld/

Occupational Endorsement

The entry-level welding occupational endorsement provides training to succeed in the structural welding industry and to pass the American Welding Society test, used as an industry standard. The program also covers the safety requirements and mathematics needed in this high-demand occupation. Applicants must be 16 years old to be admitted.

Complete the following admissions requirement:

• Be at least 16 years old by the first day of the semester in which you are admitted.

Minimum Requirements for Occupational Endorsement: 24 credits

Students must earn a C or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTCH F131</td>
<td>Mathematics for the Trades</td>
<td>3</td>
</tr>
<tr>
<td>WMT F103</td>
<td>Welding I</td>
<td>3</td>
</tr>
<tr>
<td>WMT F105</td>
<td>Welding II</td>
<td>3</td>
</tr>
<tr>
<td>WMT F130</td>
<td>Shielded Metal Arc Welding</td>
<td>3</td>
</tr>
<tr>
<td>WMT F140</td>
<td>Metal Fabrication</td>
<td>3</td>
</tr>
<tr>
<td>WMT F160</td>
<td>Gas Metal Arc Welding</td>
<td>3</td>
</tr>
<tr>
<td>WMT F290</td>
<td>Welding Proficiency Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>WMT F150</td>
<td>Gas Tungsten Arc Welding</td>
<td>3</td>
</tr>
</tbody>
</table>

Wildland Fire Science

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/emergency/

Occupational Endorsement

The wildland fire science occupational endorsement provides students with the knowledge and skills to perform at the first level of wildland fire management. This includes managing a squad on a wildland fire crew, correct methods of operation for wildland fire chainsaws and pumps, and working around fire helicopters and aircraft. Completion of this program can lead to employment in the field, provide a foundation for wildland fire management, including in- and out-of-state wildland fire assignments, and act as a steppingstone to the Associate of Applied Science degree in
wildland fire control. Completion of the wildland fire science occupational endorsement will create a well-rounded entry-level firefighter capable of filling positions on wildland fires. Applicants must be 18 years old to be admitted.

Complete the following admission requirement:

• Be at least 18 years old by the first day of the semester in which you are admitted.

**Minimum Requirements for Occupational Endorsement: 11 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td>Occupational Endorsement Requirements</td>
<td>Complete the occupational endorsement requirements. (p. 84)</td>
<td></td>
</tr>
<tr>
<td>Program Requirements</td>
<td>FIRE F151 Wildland Firefighter I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FIRE F152 Wildland Firefighter II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FIRE F153 Wildland Firefighter III</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>FIRE F157 Wildland Air Operations</td>
<td>3</td>
</tr>
</tbody>
</table>
HOW TO EARN A CERTIFICATE OR ASSOCIATE DEGREE

To earn a UAF degree, you must satisfy three sets of requirements: general university requirements; certificate or degree requirements; and program (major) requirements. These requirements are all described in this section of the catalog. Requirements for your major are found in the Certificate and Associate Degree Programs (p. 104) section.

If your degree program is delivered collaboratively within the UA system (e.g., information technology specialist, early childhood education, human services, rural human services), then the credits you earn from each UA institution will be counted toward fulfillment of the degree requirements and fulfillment of the minimum institutional residency requirements. Institutional residency requirements are the minimum number of credits you must earn from the campus where you earn a degree.

General University Requirements

You must earn at least 30 semester credits for a certificate and 60 semester credits for an associate degree, including transfer credits, at the 100-level or above. At least 15 semester credits applicable to any certificate or associate degree must be earned at UAF. A minimum cumulative GPA of 2.0 is required in all work as well as in your major field. In addition, you must earn a minimum C- grade in courses required for your associate degree major. Some majors require higher GPAs for major course work.

Unless otherwise specified by the appropriate academic unit, a course may be taken more than once toward fulfilling degree, certificate or major requirements. However, credit hours for such courses count only once toward total credits required for the degree or certificate.

<table>
<thead>
<tr>
<th>Certificate</th>
<th>Associate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum number of credits required</td>
<td>30 credits</td>
</tr>
<tr>
<td>Credits that must be earned at UAF (residence credit)</td>
<td>15 credits</td>
</tr>
<tr>
<td>Grade point average required</td>
<td>2.0 cumulative and in major</td>
</tr>
<tr>
<td>Minimum grades required for major</td>
<td>No grade lower than C- in courses required for major. Some departments have higher requirements</td>
</tr>
<tr>
<td>Catalog year that can be used to meet requirements</td>
<td>May use any catalog in effect when enrolled as a degree-seeking student, regardless of major; five-year limit on catalog year</td>
</tr>
</tbody>
</table>

Second degree requirements: Only one A.A. degree may be earned; 12 credits beyond first A.A.S. degree and all requirements for the second degree must be met.

MAJORS

You may declare a major when you are admitted to UAF as a degree undergraduate student. If you haven’t chosen a major, you’ll be enrolled as a general studies student. Nondegree students are not eligible to declare a major, be assigned class standing or receive financial aid.

Students enrolled in associate degree or certificate programs who want to declare a bachelor’s degree major must apply for admission to a degree program following the standard admission process for bachelor’s degree programs. (See admission requirements in How to Earn a Bachelor’s Degree (p. 142).)

• Changing Your Major

Undergraduate students may change majors by completing a change of major form available from the Office of the Registrar or at http://www.uaf.edu/reg/forms/. A change of major becomes effective the semester it is submitted. Students who wish to change majors from one level to another level (e.g., from an associate degree to a bachelor’s degree) must apply for admission to the degree program following the standard admission process.

CONCENTRATIONS

An area of emphasis, including the major core courses within a student’s degree program, is termed a concentration. Some programs at UAF require a concentration, others do not. A student may only earn one degree in a specific discipline once. Using different concentrations within a degree program to count as different degrees is not allowed.

SECOND CERTIFICATE

To receive an additional certificate, you must complete the requirements for each certificate. You are not required to complete any additional credits beyond the requirements for each certificate.

SECOND ASSOCIATE DEGREE

To receive a second Associate of Applied Science degree, you must earn at least 12 credit hours beyond the first associate degree as well as complete all requirements for the major. As long as you have completed the additional 12-hour requirement, you may be awarded two degrees in one semester.

DEGREE REQUIREMENTS AND TIME LIMITS

You may complete degree requirements in effect and published in the UAF catalog in any one of the previous five academic years in which you are enrolled as a degree student for a certificate or associate degree. You are considered enrolled in your degree program when you complete the appropriate degree student registration procedure. If you do not enroll for a semester or more, or if you enroll through the nondegree student registration process, you aren’t considered enrolled as a degree student during that time.

EXCEPTIONS TO DEGREE REQUIREMENTS

Occasionally an undergraduate student may request an exception to an academic requirement or regulation. Requests for an academic dispensation must be approved by petition. If you submit a petition on the basis of a disability, the coordinator of Disability Services will be consulted. Undergraduate Petition forms are available at the Office of the Registrar or online at http://www.uaf.edu/reg/forms/. Forms must be returned to the Office of the Registrar with required approval signatures. The Office of the Registrar will note your petition in DegreeWorks once the appropriate person or committee has made a decision. Academic petitions fall into three categories, and each involves different processes:
Types of Certificates and Associate Degrees

Summary of Certificate and Associate Degree Requirements

Types of Certificates and Associate Degrees

• Certificate Programs
  Certificate programs are for students preparing for entry-level employment or upgrading in a specific occupation.

• Associate of Science
  The A.S. degree represents the completion of a broad-based course of study with an emphasis in the sciences. This degree may serve as a steppingstone to a science-related baccalaureate program. You may earn only one A.S. degree.

• Associate of Arts
  The A.A. is a program of study with an interdisciplinary approach useful for transferring to future degree programs or as a starting point for a career. An emphasis created in an A.A. program can fulfill general education requirements or become the basis for a minor in many bachelor’s programs. The A.A. degree is offered at all UAF campuses as well as online. Students may earn only one A.A.
• **Associate of Applied Science**
  The A.A.S. is for students preparing for entry-level employment or upgrading in a specific occupation. This degree is not intended for transfer into a four-year degree program. However, some courses within the A.A.S. degree may be accepted in a four-year bachelor’s program. (Each course is considered on an individual basis.)

**General Associate Degree Requirements**

You must have completed at least 60 semester hours, including transfer credits, to earn a UAF associate degree.

At least 15 credits applicable to any associate degree must be UAF resident credits.

See a list of all Certificate and Associate Degree programs here. (p. 104)

**Certificate Requirements**

Certificate programs vary in length; however, you can usually complete them in one year. Certificates are awarded in specific occupational fields with emphasis on entering the job market. These certificates can serve as the basis for additional education and are the first step toward an Associate of Applied Science degree. For specific major requirements, refer to the degrees and programs section (p. 104).

If your degree program is delivered collaboratively within the UA system, credits you earn from each UA institution will be counted toward fulfillment of the degree requirements and fulfillment of the minimum institutional residency requirements.

You may enroll in any course for which you are eligible. To earn a certificate, you must formally be admitted to a certificate program and you must earn at least 30 credits, including transfer credit. Fifteen semester hours must be residence credits. You must have a cumulative GPA of at least 2.0 in your major and overall. Students must earn a minimum grade of C- in all major courses. Some majors require higher GPAs for major course work. Programs of study for which certificates are granted must contain a recognizable body of instruction in the program-related areas of communication, computation and human relations.

Additional appropriate topics may include safety, industrial safety and environmental awareness. Instruction in the related instructional areas may be embedded within the program curriculum or taught in blocks of specialized instruction. Each approach, however, will have clearly identified content that is pertinent to the general program of study.

**Note:** Students planning to go on to a bachelor’s degree need to work closely with their advisors and are encouraged to select courses meeting general education requirements and courses designated within majors and minors. Only those courses with an X designator count toward the baccalaureate general education requirements.

### REQUIREMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Communication</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td></td>
</tr>
<tr>
<td>ABUS F170</td>
<td>Business English</td>
<td>2-3</td>
</tr>
<tr>
<td>ABUS F271</td>
<td>Business Communications</td>
<td></td>
</tr>
<tr>
<td>COJO F121X</td>
<td>Introduction to Interpersonal Communication</td>
<td></td>
</tr>
<tr>
<td>COJO F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
<td></td>
</tr>
<tr>
<td>COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
<td></td>
</tr>
<tr>
<td>DEV F104</td>
<td>University Communications</td>
<td></td>
</tr>
<tr>
<td>DEV F105</td>
<td>Academic Reading for College</td>
<td></td>
</tr>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Context</td>
<td></td>
</tr>
<tr>
<td>WRTG F211X</td>
<td>Writing and the Humanities</td>
<td></td>
</tr>
<tr>
<td>WRTG F212X</td>
<td>Writing and the Professions</td>
<td></td>
</tr>
<tr>
<td>WRTG F213X</td>
<td>Writing and the Sciences</td>
<td></td>
</tr>
<tr>
<td>WRTG F214X</td>
<td>Arguing Across Context</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other program-approved discipline-based communication course or discipline-based courses with embedded communication content.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Computation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any course at the F100-level or above in mathematical sciences (computer science, math or statistics).</td>
<td></td>
</tr>
<tr>
<td>ABUS F155</td>
<td>Business Math</td>
<td></td>
</tr>
<tr>
<td>DEV F105</td>
<td>Intermediate Algebra</td>
<td></td>
</tr>
<tr>
<td>ECE F117</td>
<td>Math Skills for Early Childhood Educators</td>
<td></td>
</tr>
</tbody>
</table>
HLTH F116  Mathematics in Health Care
HUMS F117  Math Skills for Human Services
TTCH F131  Mathematics for the Trades

Other program-approved discipline-based computation course or discipline-based courses with embedded computation content.

**Human Relations**  
Complete one of the following:

- ABUS F154  Human Relations
- ANL F287  Teaching Methods for Alaska Native Languages
- ANTH F100X  Individual, Society and Culture
- ECE F104X  Child Development I: Prenatal, Infants and Toddlers
- ECE F107  Child Development II: The Preschool and Primary Years
- ED/PSY F245  Child Development
- HLTH F106  Human Behavior in Health Care
- HUMS F120  Cultural Diversity in Human Services
- RHS F110 and RHS F115  Cross-cultural Bridging Skills and Issues of Personal Development
- SOC F101X  Introduction to Sociology

Other program-approved discipline-based human relations or discipline-based courses with embedded human relations content.

**Major Specialty**  
At least 21 hours of major specialty courses

**Electives to Total**  
21

30

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**Associate of Arts Requirements**

The Associate of Arts degree represents the completion of broad-based college study. This degree may serve as a starting point for your career or as a steppingstone to a bachelor’s program. You may earn only one A.A. degree.

Students planning to go on to a bachelor’s degree are advised to select courses meeting remaining general education requirements and courses designated within bachelor’s degree majors and minors.

The curriculum of the Associate of Arts degree consists of all courses required to meet the UAF baccalaureate general education requirements, with the following exception:

All credits for the A.A. degree must be at the F100 level or above, with 20 credits at the F200 level or above, and be distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General education requirement credits</td>
<td>35-40</td>
</tr>
<tr>
<td></td>
<td>A.A. degree requirements</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>General electives</td>
<td>19-24</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>60</td>
</tr>
</tbody>
</table>

**REQUIREMENTS**

**Minimum Requirements for Degree: 60 credits**

**General Education Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F121X</td>
<td>Introduction to Interpersonal Communication</td>
<td>9</td>
</tr>
<tr>
<td>or COJO F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
<td></td>
</tr>
<tr>
<td>or COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
<td></td>
</tr>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Context</td>
<td></td>
</tr>
<tr>
<td>WRTG F211X</td>
<td>Writing and the Humanities</td>
<td></td>
</tr>
<tr>
<td>or WRTG F212X</td>
<td>Writing and the Professions</td>
<td></td>
</tr>
<tr>
<td>or WRTG F213X</td>
<td>Writing and the Sciences</td>
<td></td>
</tr>
<tr>
<td>or WRTG F214X</td>
<td>Arguing Across Context</td>
<td></td>
</tr>
</tbody>
</table>
### Arts

Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS/FLPA F161X</td>
<td>Introduction to Alaska Native Performance</td>
</tr>
<tr>
<td>ANS F202X</td>
<td>Aesthetic Appreciation of Alaska Native Performance</td>
</tr>
<tr>
<td>ANS/MUS/ACNS F223X</td>
<td>Alaska Native Music</td>
</tr>
<tr>
<td>ART F200X</td>
<td>Explorations in Art</td>
</tr>
<tr>
<td>ART F261X</td>
<td>History of World Art</td>
</tr>
<tr>
<td>ART F262X</td>
<td>History of World Art</td>
</tr>
<tr>
<td>ENGL/FLPA/COJO F217X</td>
<td>Introduction to the Study of Film</td>
</tr>
<tr>
<td>FLPA F200X</td>
<td>Performance, Production and the Audience</td>
</tr>
<tr>
<td>FLPA F215X</td>
<td>Dramatic Literature and History</td>
</tr>
<tr>
<td>HUM F201X</td>
<td>Unity in the Arts</td>
</tr>
<tr>
<td>MUS F103X</td>
<td>Music Fundamentals</td>
</tr>
<tr>
<td>MUS F125X</td>
<td>Enjoying Jazz</td>
</tr>
<tr>
<td>MUS F200X</td>
<td>Explorations in Music</td>
</tr>
</tbody>
</table>

### Humanities

Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F251X</td>
<td>Introduction to Athabascan Linguistics</td>
</tr>
<tr>
<td>ANL F255X</td>
<td>Introduction to Alaska Native Languages</td>
</tr>
<tr>
<td>COJO F101X</td>
<td>Media and Culture</td>
</tr>
<tr>
<td>COJO F102X</td>
<td>Introduction to Broadcasting</td>
</tr>
<tr>
<td>ENGL/FL F200X</td>
<td>World Literature</td>
</tr>
<tr>
<td>ENGL F270X</td>
<td>Introduction to Creative Writing</td>
</tr>
<tr>
<td>LING F101X</td>
<td>Nature of Language</td>
</tr>
<tr>
<td>LING F216X</td>
<td>Languages of the World</td>
</tr>
<tr>
<td>PHIL F102X</td>
<td>Introduction to Philosophy</td>
</tr>
<tr>
<td>PHIL F104X</td>
<td>Logic and Reasoning</td>
</tr>
<tr>
<td>RELG F221X</td>
<td>Religions of the World</td>
</tr>
</tbody>
</table>

OR take one of the following languages:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F141X</td>
<td>Beginning Athabascan-Koyukon or Gwich'in</td>
</tr>
<tr>
<td>ANL F142X</td>
<td>Beginning Athabascan</td>
</tr>
<tr>
<td>ASLG F101X</td>
<td>American Sign Language I</td>
</tr>
<tr>
<td>ASLG F202X</td>
<td>American Sign Language II</td>
</tr>
<tr>
<td>CHNS F101X</td>
<td>Elementary Chinese I</td>
</tr>
<tr>
<td>CHNS F102X</td>
<td>Elementary Chinese II</td>
</tr>
<tr>
<td>FREN F101X</td>
<td>Elementary French I</td>
</tr>
<tr>
<td>FREN F102X</td>
<td>Elementary French II</td>
</tr>
<tr>
<td>GER F101X</td>
<td>Elementary German I</td>
</tr>
<tr>
<td>GER F102X</td>
<td>Elementary German II</td>
</tr>
<tr>
<td>INU F111X</td>
<td>Elementary Inupiaq</td>
</tr>
<tr>
<td>INU F112X</td>
<td>Elementary Inupiaq</td>
</tr>
<tr>
<td>JPN F101X</td>
<td>Elementary Japanese I</td>
</tr>
<tr>
<td>JPN F102X</td>
<td>Elementary Japanese II</td>
</tr>
<tr>
<td>LAT F101X</td>
<td>Beginning Latin I</td>
</tr>
<tr>
<td>LAT F102X</td>
<td>Beginning Latin II</td>
</tr>
<tr>
<td>RUSS F101X</td>
<td>Elementary Russian I</td>
</tr>
<tr>
<td>RUSS F102X</td>
<td>Elementary Russian II</td>
</tr>
<tr>
<td>SPAN F101X</td>
<td>Elementary Spanish I</td>
</tr>
<tr>
<td>SPAN F102X</td>
<td>Elementary Spanish II</td>
</tr>
<tr>
<td>YUP F101X</td>
<td>Elementary Central Yup'ik</td>
</tr>
<tr>
<td>YUP F102X</td>
<td>Elementary Central Yup'ik</td>
</tr>
</tbody>
</table>
### Social Sciences

Complete two courses from the following in two different disciplines:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
</tr>
<tr>
<td>ANS F111X</td>
<td>History of Colonization in Alaska: The Indigenous Response</td>
</tr>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>ANTH F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<tr>
<td>ANTH F101X</td>
<td>Introduction to Anthropology</td>
</tr>
<tr>
<td>ANTH F111X</td>
<td>Ancient Civilizations</td>
</tr>
<tr>
<td>ANTH F211X</td>
<td>Fundamentals of Archaeology</td>
</tr>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BA F254X</td>
<td>Personal Finance (s)</td>
</tr>
<tr>
<td>BA/SPRT F281X</td>
<td>Introduction to Sport Management</td>
</tr>
<tr>
<td>ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
</tr>
<tr>
<td>ECON F100X</td>
<td>Political Economy</td>
</tr>
<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
</tr>
<tr>
<td>ECON F202X</td>
<td>Principles of Economics II: Macroeconomics</td>
</tr>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
</tr>
<tr>
<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
</tr>
<tr>
<td>HIST F100X</td>
<td>Modern World History</td>
</tr>
<tr>
<td>HIST F102X</td>
<td>Western Civilization Since 1500</td>
</tr>
<tr>
<td>HIST F122X</td>
<td>East Asian Civilization</td>
</tr>
<tr>
<td>HIST F132X</td>
<td>History of the U.S.</td>
</tr>
<tr>
<td>HUMS/JUST F125X</td>
<td>Introduction to Addictive Processes</td>
</tr>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
</tr>
<tr>
<td>JUST F251X</td>
<td>Criminology</td>
</tr>
<tr>
<td>PS F100X</td>
<td>Political Economy</td>
</tr>
<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
</tr>
<tr>
<td>PS F201X</td>
<td>Comparative Politics</td>
</tr>
<tr>
<td>PS F221X</td>
<td>International Politics</td>
</tr>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
</tr>
<tr>
<td>RD F200X</td>
<td>Rural Development in the North</td>
</tr>
<tr>
<td>SOC F101X</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems and Solutions</td>
</tr>
<tr>
<td>SWK F103X</td>
<td>Introduction to Social Work</td>
</tr>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women's Gender and Sexuality Studies</td>
</tr>
</tbody>
</table>

### Additional Arts/Humanities/Social Science

Complete one additional course from the arts, humanities or social science courses listed above.

### Mathematics

Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F113X</td>
<td>Numbers and Society</td>
</tr>
<tr>
<td>MATH F114X</td>
<td>Patterns and Society</td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Essential Precalculus with Applications ²</td>
</tr>
<tr>
<td>MATH F151X</td>
<td>College Algebra for Calculus ²</td>
</tr>
<tr>
<td>MATH F152X</td>
<td>Trigonometry</td>
</tr>
<tr>
<td>MATH F156X</td>
<td>Precalculus</td>
</tr>
<tr>
<td>MATH F230X</td>
<td>Essential Calculus with Applications ³⁴</td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I ³⁴</td>
</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II ⁴</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III ⁴</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
</tr>
</tbody>
</table>

### Natural Sciences

Complete two from the following:
**Summary of Certificate and Associate Degree Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
</tr>
<tr>
<td>BIOL F100X</td>
<td>Human Biology</td>
</tr>
<tr>
<td>BIOL F103X</td>
<td>Biology and Society</td>
</tr>
<tr>
<td>BIOL F104X</td>
<td>Natural History of Alaska</td>
</tr>
<tr>
<td>BIOL F111X</td>
<td>Human Anatomy and Physiology I</td>
</tr>
<tr>
<td>BIOL F112X</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
</tr>
<tr>
<td>BIOL F120X</td>
<td>Introduction to Human Nutrition</td>
</tr>
<tr>
<td>CHEM F100X</td>
<td>Chemistry in Complex Systems</td>
</tr>
<tr>
<td>CHEM F103X</td>
<td>Introduction to General Chemistry</td>
</tr>
<tr>
<td>CHEM F104X</td>
<td>Introduction to Organic Chemistry and Biochemistry</td>
</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
</tr>
<tr>
<td>CHEM F111X</td>
<td>Introduction to Environmental Chemistry of the Arctic</td>
</tr>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
</tr>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
</tr>
<tr>
<td>GEOS F106X</td>
<td>Life in the Age of Dinosaurs</td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
</tr>
<tr>
<td>GEOS F120X</td>
<td>Glaciers, Earthquakes and Volcanoes: Past, Present and Future</td>
</tr>
<tr>
<td>MSL F111X</td>
<td>The Oceans</td>
</tr>
<tr>
<td>PHYS F102X</td>
<td>Energy and Society</td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
</tr>
<tr>
<td>PHYS F104X</td>
<td>College Physics II</td>
</tr>
<tr>
<td>PHYS F115X</td>
<td>Physical Sciences</td>
</tr>
<tr>
<td>PHYS F175X</td>
<td>Introduction to Astronomy</td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
</tr>
<tr>
<td>PHYS F213X</td>
<td>Elementary Modern Physics</td>
</tr>
</tbody>
</table>

1. You may earn credit for MATH F122X or MATH F151X, but not both.
2. You may earn credit for MATH F230X or MATH F251X, but not both.
3. Or any math course having one of these as a prerequisite.

### A.A. Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Library and Information Research</td>
<td>0-1</td>
</tr>
<tr>
<td>LS F101X</td>
<td>Library Information and Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Successful completion of library skills competency test</td>
<td></td>
</tr>
</tbody>
</table>

### Associate of Applied Science Requirements

Associate of applied science degrees are awarded in specific occupational fields with emphasis on entering the job market. This degree, usually seen as a terminal degree, can serve as the basis for additional education. For specific major requirements, see the Certificate and Associate Degree Programs (p. 104) section.

Students planning to go on to a bachelor’s degree need to work closely with their advisors and are encouraged to select courses meeting general education requirements and courses designated within majors and minors. Only courses with an X designator count towards the baccalaureate core.

All credits for the A.A.S. degree must be at the F100 level or above and be distributed as follows:

### REQUIREMENTS

#### Minimum Requirements for Degree: 60 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Communication</td>
<td>9</td>
</tr>
</tbody>
</table>
Complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F271</td>
<td>Business Communications</td>
</tr>
<tr>
<td>or WRTG F211X</td>
<td>Writing and the Humanities</td>
</tr>
<tr>
<td>or WRTG F212X</td>
<td>Writing and the Professions</td>
</tr>
<tr>
<td>or WRTG F213X</td>
<td>Writing and the Sciences</td>
</tr>
<tr>
<td>or WRTG F214X</td>
<td>Arguing Across Contexts</td>
</tr>
<tr>
<td>COJO F121X</td>
<td>Introduction to Interpersonal Communication</td>
</tr>
<tr>
<td>or COJO F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
</tr>
<tr>
<td>or COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
</tr>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Contexts</td>
</tr>
</tbody>
</table>

Computation 3

Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F155</td>
<td>Business Math</td>
</tr>
<tr>
<td>DEVM F105</td>
<td>Intermediate Algebra</td>
</tr>
<tr>
<td>ECE F117</td>
<td>Math Skills for Early Childhood Educators</td>
</tr>
<tr>
<td>HLTH F116</td>
<td>Mathematics in Health Care</td>
</tr>
<tr>
<td>HUMS F117</td>
<td>Math Skills for Human Services</td>
</tr>
<tr>
<td>TTCH F131</td>
<td>Mathematics for the Trades</td>
</tr>
</tbody>
</table>

Other program-approved discipline-based computation course or discipline-based course with embedded computation content

Human Relations 3

Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
</tr>
<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
</tr>
<tr>
<td>ANTH F100X/SOC F101X</td>
<td>Individual, Society and Culture</td>
</tr>
<tr>
<td>ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
</tr>
<tr>
<td>ECE F107</td>
<td>Child Development II: The Preschool and Primary Years</td>
</tr>
<tr>
<td>ED/PSY F245</td>
<td>Child Development</td>
</tr>
<tr>
<td>HLTH F106</td>
<td>Human Behavior in Health Care</td>
</tr>
<tr>
<td>HUMS F120</td>
<td>Cultural Diversity in Human Services</td>
</tr>
<tr>
<td>RHS F110</td>
<td>Cross-cultural Bridging Skills</td>
</tr>
<tr>
<td>and RHS F115</td>
<td>and Issues of Personal Development</td>
</tr>
</tbody>
</table>

Other program-approved discipline-based human relations course or discipline-based course with embedded human relations content

Major Specialty

At least 30 hours of major specialty courses

Electives to total 60

Associate of Science Requirements

The Associate of Science degree represents the completion of a broad-based course of study with an emphasis in the sciences. This degree may serve as a steppingstone to a science-related baccalaureate program. You may earn only one A.S. degree.

REQUIREMENTS

Minimum Requirements for Degree: 60 credits

General Education Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F121X</td>
<td>Introduction to Interpersonal Communication</td>
</tr>
<tr>
<td>or COJO F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
</tr>
<tr>
<td>or COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
</tr>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Contexts</td>
</tr>
</tbody>
</table>
### Summary of Certificate and Associate Degree Requirements

#### Writing Credits

- **WRTG F211X**  
  Writing and the Humanities  
- or **WRTG F212X**  
  Writing and the Professions  
- or **WRTG F213X**  
  Writing and the Sciences  
- or **WRTG F214X**  
  Arguing Across Contexts

#### Arts

Complete one of the following:

- **ANS/FLPA F161X**  
  Introduction to Alaska Native Performance
- **ANS F202X**  
  Aesthetic Appreciation of Alaska Native Performance
- **ANS/MUS/ACNS F223X**  
  Alaska Native Music
- **ART F200X**  
  Explorations in Art
- **ART F261X**  
  History of World Art
- **ART F262X**  
  History of World Art
- **ENGL/FLPA/COJO F217X**  
  Introduction to the Study of Film
- **FLPA/COJO F105X**  
  History of the Cinema
- **FLPA F200X**  
  Performance, Production and the Audience
- **FLPA F215X**  
  Dramatic Literature and History
- **HUM F201X**  
  Unity in the Arts
- **MUS F103X**  
  Music Fundamentals
- **MUS F125X**  
  Enjoying Jazz
- **MUS F200X**  
  Explorations in Music

#### Humanities

Complete one of the following:

- **ANL F251X**  
  Introduction to Athabascan Linguistics
- **ANL F255X**  
  Introduction to Alaska Native Languages
- **COJO F101X**  
  Media and Culture
- **COJO F102X**  
  Introduction to Broadcasting
- **ENGL/FL F200X**  
  World Literature
- **ENGL F270X**  
  Introduction to Creative Writing
- **LING F101X**  
  Nature of Language
- **LING F216X**  
  Languages of the World
- **PHIL F102X**  
  Introduction to Philosophy
- **PHIL F104X**  
  Logic and Reasoning
- **RELG F221X**  
  Religions of the World

OR complete one of the following languages:

- **ANL F141X**  
  Beginning Athabascan-Koyukon or Gwich’in
- **ANL F142X**  
  Beginning Athabascan
- **ASLG F101X**  
  American Sign Language I
- **ASLG F202X**  
  American Sign Language II
- **CHNS F101X**  
  Elementary Chinese I
- **CHNS F102X**  
  Elementary Chinese II
- **FREN F101X**  
  Elementary French I
- **FREN F102X**  
  Elementary French II
- **GER F101X**  
  Elementary German I
- **GER F102X**  
  Elementary German II
- **INU F111X**  
  Elementary Inupiaq
- **INU F112X**  
  Elementary Inupiaq
- **JPN F101X**  
  Elementary Japanese I
- **JPN F102X**  
  Elementary Japanese II
- **LAT F101X**  
  Beginning Latin I
- **LAT F102X**  
  Beginning Latin II
- **RUSS F101X**  
  Elementary Russian I
- **RUSS F102X**  
  Elementary Russian II
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN F101X</td>
<td>Elementary Spanish I</td>
</tr>
<tr>
<td>SPAN F102X</td>
<td>Elementary Spanish II</td>
</tr>
<tr>
<td>YUP F101X</td>
<td>Elementary Central Yup’ik</td>
</tr>
<tr>
<td>YUP F102X</td>
<td>Elementary Central Yup’ik</td>
</tr>
</tbody>
</table>

**Social Sciences**  
Complete two courses from the following in two different disciplines:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
</tr>
<tr>
<td>ANS F111X</td>
<td>History of Colonization in Alaska: The Indigenous Response</td>
</tr>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>ANTH F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<tr>
<td>ANTH F101X</td>
<td>Introduction to Anthropology</td>
</tr>
<tr>
<td>ANTH F111X</td>
<td>Ancient Civilizations</td>
</tr>
<tr>
<td>ANTH F211X</td>
<td>Fundamentals of Archaeology</td>
</tr>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BA F254X</td>
<td>Personal Finance (s)</td>
</tr>
<tr>
<td>BA/SPRT F281X</td>
<td>Introduction to Sport Management</td>
</tr>
<tr>
<td>ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
</tr>
<tr>
<td>ECON F100X</td>
<td>Political Economy</td>
</tr>
<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
</tr>
<tr>
<td>ECON F202X</td>
<td>Principles of Economics II: Macroeconomics</td>
</tr>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
</tr>
<tr>
<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
</tr>
<tr>
<td>HIST F100X</td>
<td>Modern World History</td>
</tr>
<tr>
<td>HIST F102X</td>
<td>Western Civilization Since 1500</td>
</tr>
<tr>
<td>HIST F122X</td>
<td>East Asian Civilization</td>
</tr>
<tr>
<td>HIST F132X</td>
<td>History of the U.S.</td>
</tr>
<tr>
<td>HUMS/JUST F125X</td>
<td>Introduction to Addictive Processes</td>
</tr>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
</tr>
<tr>
<td>JUST F251X</td>
<td>Criminology</td>
</tr>
<tr>
<td>PS F100X</td>
<td>Political Economy</td>
</tr>
<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
</tr>
<tr>
<td>PS F201X</td>
<td>Comparative Politics</td>
</tr>
<tr>
<td>PS F221X</td>
<td>International Politics</td>
</tr>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
</tr>
<tr>
<td>RD F200X</td>
<td>Rural Development in the North</td>
</tr>
<tr>
<td>SOC F101X</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems and Solutions</td>
</tr>
<tr>
<td>SWK F103X</td>
<td>Introduction to Social Work</td>
</tr>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women’s Gender and Sexuality Studies</td>
</tr>
</tbody>
</table>

**Additional Arts/Humanities/Social Science**  
Complete one additional course from the arts, humanities or social science courses listed above.

**Mathematics**  
Complete one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F113X</td>
<td>Numbers and Society</td>
</tr>
<tr>
<td>MATH F114X</td>
<td>Patterns and Society</td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Essential Precalculus with Applications</td>
</tr>
<tr>
<td>MATH F151X</td>
<td>College Algebra for Calculus</td>
</tr>
<tr>
<td>MATH F152X</td>
<td>Trigonometry</td>
</tr>
<tr>
<td>MATH F156X</td>
<td>Precalculus</td>
</tr>
<tr>
<td>MATH F230X</td>
<td>Essential Calculus with Applications</td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus</td>
</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>
### Certificate and Associate Degree Programs

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F253X</td>
<td>Calculus III 3</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td></td>
</tr>
</tbody>
</table>

#### Natural Sciences
Complete four from the following: 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
<td></td>
</tr>
<tr>
<td>BIOL F100X</td>
<td>Human Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL F103X</td>
<td>Biology and Society</td>
<td></td>
</tr>
<tr>
<td>BIOL F104X</td>
<td>Natural History of Alaska</td>
<td></td>
</tr>
<tr>
<td>BIOL F111X</td>
<td>Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F112X</td>
<td>Human Anatomy and Physiology II</td>
<td></td>
</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td></td>
</tr>
<tr>
<td>BIOL F120X</td>
<td>Introduction to Human Nutrition</td>
<td></td>
</tr>
<tr>
<td>CHEM F100X</td>
<td>Chemistry in Complex Systems</td>
<td></td>
</tr>
<tr>
<td>CHEM F103X</td>
<td>Introduction to General Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM F104X</td>
<td>Introduction to Organic Chemistry and Biochemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM F111X</td>
<td>Introduction to Environmental Chemistry of the Arctic</td>
<td></td>
</tr>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
<td></td>
</tr>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td></td>
</tr>
<tr>
<td>GEOS F106X</td>
<td>Life in the Age of Dinosaurs</td>
<td></td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td></td>
</tr>
<tr>
<td>GEOS F120X</td>
<td>Glaciers, Earthquakes and Volcanoes: Past, Present and Future</td>
<td></td>
</tr>
<tr>
<td>MSL F111X</td>
<td>The Oceans</td>
<td></td>
</tr>
<tr>
<td>PHYS F102X</td>
<td>Energy and Society</td>
<td></td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F104X</td>
<td>College Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS F115X</td>
<td>Physical Sciences</td>
<td></td>
</tr>
<tr>
<td>PHYS F175X</td>
<td>Introduction to Astronomy</td>
<td></td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS F213X</td>
<td>Elementary Modern Physics</td>
<td></td>
</tr>
</tbody>
</table>

#### Concentration Specialty
Complete 15 credits of concentration specialty courses as approved by the department

1. You may earn credit for MATH F122X or MATH F151X, but not both.
2. You may earn credit for MATH F230X or MATH F251X, but not both.
3. Or any math course having one of these as a prerequisite.
4. Complete a one-year sequence in one natural science beyond the baccalaureate general education requirements. The total courses used to satisfy this requirement shall represent at least two different natural sciences.

### A.S. Degree Requirements

#### Library and Information Research

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS F101X</td>
<td>Library Information and Research</td>
<td>0-1</td>
</tr>
</tbody>
</table>

Successful completion of library skills competency test
Accounting Technician
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/accounting/

Certificate
The accounting technician program prepares students for entry-level accounting positions in payables and/or receivables, bookkeeping and payroll accounting. This program covers financial decision-making tools for the small-business operator as well.

Courses in this program address the concerns of modern businesspeople and provide training to enhance business success. The accounting technician certificate represents the first year of training toward the applied accounting A.A.S. degree. Students admitted into the accounting B.B.A. degree program may apply their earned certificate credits toward the State of Alaska’s 150-hour requirement for a certified public accountant license.

Students entering the certificate program are expected to have basic computer skills equivalent to CIOS F150. Classes are scheduled in the evening to accommodate working students. Microcomputer and office technology labs are available for hands-on training.

Certificate
- Accounting Technician (p. 105)

Certificate, Accounting Technician
Minimum Requirements for Certificate: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 94)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Certificate Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F170</td>
<td>Business English</td>
<td></td>
</tr>
<tr>
<td>ABUS F271</td>
<td>Business Communications</td>
<td></td>
</tr>
<tr>
<td>WRTG F111 X</td>
<td>Writing Across Contexts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computation</td>
<td></td>
</tr>
<tr>
<td>ABUS F155</td>
<td>Business Math (or MATH at the 100 level or above)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Human Relations</td>
<td></td>
</tr>
<tr>
<td>ABUS F154</td>
<td>Human Relations (or other UAF certificate-approved human relations course)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>ABUS F101</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F141</td>
<td>Payroll Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F235</td>
<td>Fund Accounting for Nonprofits</td>
<td></td>
</tr>
<tr>
<td>ABUS F203</td>
<td>Accounting Capstone</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F210</td>
<td>Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F220</td>
<td>Microcomputer Accounting: QuickBooks</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F221</td>
<td>Microcomputer Accounting</td>
<td></td>
</tr>
</tbody>
</table>

Accounting, Applied

Accounting, Applied
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/accounting/

A.A.S. Degree, Minor
Minimum Requirements for A.A.S. Degree: 60 credits

The applied accounting program prepares students for entry- and midlevel accounting positions in payables and/or receivables, bookkeeping and payroll accounting. This program covers financial decision-making tools for the small-business operator as well.

Courses in the applied accounting program address the concerns of modern businesspeople and provide training to enhance business success. The applied accounting program prepares a student to enter the School of Management’s B.B.A. program in accounting to earn the 150 credits required to take the Uniform CPA Examination in Alaska.

Students entering the A.A.S. program are expected to have basic computer skills equivalent to CIOS F150. Classes are scheduled during the day, in the evening and online to accommodate working students. Microcomputer and office technology labs are available for hands-on training.

Degree
- A.A.S., Accounting, Applied (p. 105)

Minor
- Minor, Accounting, Applied (p. 106)

A.A.S, Accounting, Applied
Minimum Requirements for A.A.S. Degree: 60 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td></td>
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<td>Complete the general university requirements. (p. 94)</td>
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<tr>
<td>ABUS F101</td>
<td>Principles of Accounting I</td>
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<td>ABUS F141</td>
<td>Payroll Accounting</td>
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<tr>
<td>ABUS F175</td>
<td>Customer Service</td>
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<td>ABUS F201</td>
<td>Principles of Accounting II</td>
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<td>Principles of Accounting III</td>
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<td>ABUS F203</td>
<td>Accounting Capstone</td>
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<td>ABUS F221</td>
<td>Microcomputer Accounting</td>
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<td>or ABUS F220</td>
<td>Microcomputer Accounting: QuickBooks</td>
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<tr>
<td>ABUS F233</td>
<td>Financial Management</td>
<td>3</td>
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<tr>
<td>ABUS F235</td>
<td>Fund Accounting for Nonprofits</td>
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<tr>
<td>or ABUS F160</td>
<td>Principles of Banking</td>
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Minor, Accounting, Applied

Minimum Requirements for Minor: 18 credits

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<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
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</tr>
<tr>
<td>or ABUS F235</td>
<td>Fund Accounting for Nonprofits</td>
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<tr>
<td>ABUS F210</td>
<td>Income Tax</td>
<td>3</td>
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<tr>
<td>ABUS F220</td>
<td>Microcomputer Accounting: QuickBooks</td>
<td>3</td>
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<td>or ABUS F221</td>
<td>Microcomputer Accounting</td>
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<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
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<tr>
<td>CIOS F135</td>
<td>Microcomputer Spreadsheets</td>
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<tr>
<td>or CIOS F240</td>
<td>Microcomputer Databases</td>
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</table>

As part of the A.A.S. degree requirements, it is recommended, though not required, that students complete ABUS F154 for the human relations requirement and ABUS F155 for the computation requirement.

Apprenticeship Technologies

Community and Technical College
907-455-2800
https://www.ctc.uaf.edu/programs/apprenticeship-technology/

A.A.S. Degree

Minimum Requirements for Degree: 60 credits

The A.A.S. degree in apprenticeship technologies provides career and technical training and supporting course work to prepare students for the rapidly changing global workplace. The program also helps Alaska industries by training workers who can meet increasing certification requirements which reflect complex business and industrial standards.

The apprenticeship technologies program is a 60-credit A.A.S. degree delivered collaboratively through UAA, UAF and UAS. The practical integration of general course work and training for vocational-technical trades specifically reflects the commitment of the university to high-quality instruction and public service. Individuals earning this degree must complete a formal apprenticeship program and hold journey-level status in trades or occupations (including occupational license or occupational certificate) recognized by the U.S. Department of Labor’s Training and Employment Administration.

Students declaring a major in apprenticeship technologies must present documentation of acceptance into an apprenticeship program meeting the requirements of the U.S. Department of Labor, Training and Employment Administration. The appropriate College of Rural and Community Development campus will review the documentation and may recommend up to 38 credits of course work following completion of all courses listed below. Students are encouraged to begin the required courses while completing the apprenticeship program to expand the quality and breadth of the program. Students who complete this program may be eligible to enroll in the B.S. technology degree program at UAA or the B.A.A.S. degree program at UAF.

Degrees

• A.A.S., Apprenticeship Technologies (p. 106)

A.A.S., Apprenticeship Technologies

Minimum Requirements for Degree: 60 credits

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tr>
<td>COJO F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
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<td>or COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
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<td>WRTG F111X</td>
<td>Writing Across Contexts</td>
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<td>WRTG F212X</td>
<td>Writing and the Professions</td>
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<td>Complete one of the following:</td>
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<td>DEVM F105</td>
<td>Intermediate Algebra</td>
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<td>STAT F200X</td>
<td>Elementary Statistics</td>
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<td>Any MATH course at the 100 level or higher</td>
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<td>Complete one of the following:</td>
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<td>ABUS F154</td>
<td>Human Relations</td>
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<tr>
<td>ANTH F100X</td>
<td>Individual, Society and Culture</td>
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<tr>
<td>SOC F101X</td>
<td>Introduction to Sociology</td>
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<td>Safety, computer, business, technical or other advisor-approved courses linked to an identified education or career pathway</td>
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<td>Approved apprenticeship program transfer of credit maximum</td>
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<tr>
<td>Electives to complete 60 credits as needed</td>
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Associate of Arts

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/aa/

A.A. Degree

Minimum Requirements for Degree: 60 credits

The Associate of Arts degree is offered at all UAF campuses. The degree offers a rigorous program of study for the serious student who eventually intends to transfer to a bachelor’s degree program. The degree may serve as a starting point for a career or as a steppingstone to a bachelor’s program. You may earn only one A.A. degree.

Minimum Requirements for Degree: 60 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
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<tr>
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</table>
Complete the A.A. degree requirements. (p. 97)

## Associate of Science

College of Rural and Community Development  
907-474-7143  
http://www.uaf.edu/iac/associateofsciencedegree/

### A.S. Degree

Minimum Requirements for Degree: 60 credits

The Associate of Science degree represents the completion of a broad-based course of study with an emphasis in the sciences. This degree may serve as a stepping-stone to a science-related baccalaureate program. You may earn only one A.S. degree.

Minimum Requirements for Degree: 60 credits

<table>
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<th>Code</th>
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<tbody>
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<td></td>
<td>Concentration Area</td>
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<td></td>
<td>Science-focused area of study in natural science, mathematics, statistics, engineering, computer science or from a Bachelor of Science degree area as determined in coordination with your advisor</td>
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</table>

1 All credits for the A.S. degree must be at the 100 level or above with 20 credits at the 200 level or above. Variation in credits depends on the concentration area.

### Certificate

- Automotive Technology (p. 107)

## Certificate, Automotive Technology

Minimum Requirements for Certificate: 34 credits

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<td>General University Requirements</td>
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<td></td>
<td>Certificate Requirements</td>
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<td>AUTO F102</td>
<td>Introduction to Automotive Technology</td>
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<td>AUTO F110</td>
<td>Basic Electrical Systems</td>
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<td>AUTO F122</td>
<td>Engine Theory and Diagnosis</td>
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<td>AUTO F131</td>
<td>Automotive Electrical II</td>
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<td>AUTO F150</td>
<td>Brake Systems</td>
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<tr>
<td>AUTO F162</td>
<td>Suspension Alignment</td>
<td>4</td>
</tr>
<tr>
<td>AUTO F190</td>
<td>Automotive Practicum I</td>
<td>4</td>
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<tr>
<td>AUTO F202</td>
<td>Auto Fuel and Emissions Systems</td>
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<td>AUTO F222</td>
<td>Automotive Engine Performance</td>
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<tr>
<td>AUTO F227</td>
<td>Automotive Electrical III</td>
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</table>

1 See the certificate requirements (p. 96). As part of the certificate requirements, the communication, computation and human relations content are embedded in the major required courses for this program.

### Automotive Technology

Certificate

Minimum Requirements for Certificate: 34 credits

The automotive technology program gives students the education and training to become an entry-level automotive technician. The automotive service industry is constantly changing as cars become more complicated. Highly trained technicians are needed to understand, diagnose and repair modern automobiles.

The program emphasizes hands-on training and in-class experience as students perform preventive maintenance inspections, determine causes of equipment problems and make necessary repairs and adjustments to the complex systems that make up today’s cars. The certificate training qualifies students for entry-level positions within the automotive service and repair industry in the areas of electricity/electronics, brakes, suspension and alignment, and engine performance.

Successful graduates from the automotive technology program go on to careers in dealerships, independent shops, service/IM stations, fleet repair facilities and aviation ground support. Salaries vary depending on job placement and the student’s skill level.

### Aviation Maintenance

Certificate; A.A.S. Degree

Minimum Requirements for Certificate: 31-49 credits; for Degree: 64 credits

Aviation maintenance offers an A.A.S. degree and certificates in three areas: airframe, powerplant, or airframe and powerplant.

Students who receive a certificate in airframe and powerplant may elect to complete the A.A.S. degree in aviation maintenance to enhance their employability.

Students in the airframe and powerplant certificate program may complete requirements for the Federal Aviation Administration mechanic’s certificate with both airframe and powerplant ratings in as little as one year. The aviation maintenance program covers many subject areas, but it places special emphasis on those skills most sought after in the Alaska job market. Through classroom and hands-on laboratory instruction, this intensive curriculum prepares students for entry into the aviation field. Graduates who pass the FAA examinations for the airframe and powerplant ratings usually qualify for entry-level positions in the maintenance, repair, overhaul and modification of aircraft.
Students interested in qualifying for an FAA airframe mechanic's certificate may choose to earn only the airframe certificate. Those who wish to qualify for an FAA powerplant mechanic's certificate may choose to earn only the powerplant certificate.

Admission to the airframe and powerplant programs is at the discretion of the program faculty and requires an interview with the faculty advisor. The program normally starts around the end of August of each year.

**Degree**

- A.A.S., Aviation Maintenance (p. 108)

**Certificates**

- Airframe and Powerplant (p. 108)
- Airframe (p. 108)
- Powerplant (p. 109)

**A.A.S., Aviation Maintenance**

**Minimum Requirements for Degree: 64 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
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<td><strong>Airframe and Powerplant Certificate Requirements</strong></td>
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<td>Complete the Airframe and Powerplant certificate requirements. (p. 108)</td>
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**Certificate, Airframe**

**Minimum Requirements for Certificate: 31 credits**

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<td>AFPM F145</td>
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<td>AFPM F146</td>
<td>Basic Electricity</td>
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<tr>
<td>AFPM F147</td>
<td>Physics for Mechanics</td>
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<tr>
<td>AFPM F148</td>
<td>Aircraft Drawing</td>
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</tr>
<tr>
<td>AFPM F149</td>
<td>Fluid Lines and Fittings</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM F150</td>
<td>Materials and Processes</td>
<td>2</td>
</tr>
<tr>
<td>AFPM F151</td>
<td>Cleaning and Corrosion Control</td>
<td>1</td>
</tr>
<tr>
<td>AFPM F152</td>
<td>Federal Aviation Regulations</td>
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<tr>
<td>AFPM F153</td>
<td>Weight and Balance</td>
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<td>AFPM F154</td>
<td>Ground Operations and Servicing</td>
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<td><strong>Airframe Structures Requirements</strong></td>
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<td>AFPM F261</td>
<td>Nonmetallic Structures</td>
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<td>AFPM F262</td>
<td>Aircraft Coverings</td>
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<tr>
<td>AFPM F263</td>
<td>Aircraft Finishes</td>
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<td>AFPM F264</td>
<td>Sheet Metal Structures</td>
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<td></td>
<td><strong>Airframe Systems and Components Requirements</strong></td>
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<td>AFPM F265</td>
<td>Aircraft Welding</td>
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<td>AFPM F266</td>
<td>Assembly and Rigging</td>
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<td>AFPM F267</td>
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<tr>
<td>AFPM F270</td>
<td>Airframe Testing</td>
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1 As part of the certificate requirements, the communication, computation and human relations content is embedded in the major required courses for this program.

**Certificate, Airframe and Powerplant**

**Minimum Requirements for Certificate: 49 credits**

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<tr>
<td>AFPM F146</td>
<td>Basic Electricity</td>
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<tr>
<td>AFPM F147</td>
<td>Physics for Mechanics</td>
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<td>AFPM F148</td>
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<td>AFPM F149</td>
<td>Fluid Lines and Fittings</td>
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<td>AFPM F150</td>
<td>Materials and Processes</td>
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<td>Cleaning and Corrosion Control</td>
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<td>AFPM F152</td>
<td>Federal Aviation Regulations</td>
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<td>AFPM F153</td>
<td>Weight and Balance</td>
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<td><strong>Airframe Structures Requirements</strong></td>
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<td>AFPM F262</td>
<td>Aircraft Coverings</td>
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<td>AFPM F263</td>
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<td>Sheet Metal Structures</td>
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<td>AFPM F266</td>
<td>Assembly and Rigging</td>
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<td>AFPM F267</td>
<td>Airframe Inspections</td>
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<td>AFPM F270</td>
<td>Airframe Testing</td>
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<tr>
<td>AFPM F230</td>
<td>Aircraft Electrical Systems</td>
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AFPM F253  Transport Category Aircraft  1
AFPM F254  Ice and Rain Control Systems  0.5
AFPM F256  Communications and Navigation Systems  0.5
AFPM F258  Cabin Atmosphere Control Systems  1
AFPM F259  Hydraulic and Pneumatic Systems  1.5
AFPM F260  Aircraft Landing Gear Systems  1.5

Powerplant Theory and Maintenance Requirements
AFPM F235  Aircraft Reciprocating Engines  4.5
AFPM F240  Turbine Engines  2
AFPM F271  Powerplant Inspections  0.5
AFPM F272  Powerplant Testing  0.5

Powerplant Systems and Components Requirements
AFPM F231  Powerplant Electrical Systems  1.5
AFPM F244  Lubricating Systems  1.5
AFPM F245  Ignition Systems  2
AFPM F246  Fuel Metering Systems  2
AFPM F248  Induction Systems  0.5
AFPM F249  Powerplant Cooling Systems  0.5
AFPM F250  Powerplant Exhaust Systems  0.5
AFPM F252  Propellers  2

Combined Systems and Components Requirements
AFPM F251  Fuel Systems  1.5
AFPM F255  Fire Protection Systems  0.5
AFPM F257  Instrument Systems  0.5

1 As part of the certificate requirements, the communication, computation and human relations content is embedded in the major required courses for this program.

Certificate, Powerplant

Minimum Requirements for Certificate: 31 credits

<table>
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<td>AFPM F244</td>
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<tr>
<td>AFPM F245</td>
<td>Ignition Systems</td>
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<td>AFPM F246</td>
<td>Fuel Metering Systems</td>
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<tr>
<td>AFPM F248</td>
<td>Induction Systems</td>
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<tr>
<td>AFPM F249</td>
<td>Powerplant Cooling Systems</td>
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<td>AFPM F250</td>
<td>Powerplant Exhaust Systems</td>
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<td>AFPM F252</td>
<td>Propellers</td>
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AFPM F235  Aircraft Reciprocating Engines  4.5
AFPM F240  Turbine Engines  2
AFPM F271  Powerplant Inspections  0.5
AFPM F272  Powerplant Testing  0.5

Powerplant and Systems Components Requirements

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>AFPM F260</td>
<td>Powerplant Testing</td>
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</table>

Certificate

Minimum Requirements for Certificate: 30-36 credits

Planning and preparation are keys to success in business. The applied business management certificate provides students with the basic principles to run a business effectively. Graduates of the program will have the foundation of contemporary management skills to successfully lead private, public and nonprofit organizations through ever-changing social and economic conditions.

The program covers basic knowledge and skills, emerging technologies, advanced procedures, and interpersonal skills. Course work includes accounting, management, human relations, math, communications, customer service, computers, law, finance and logic. The curriculum also serves as the first year of training toward the A.A.S. degree in applied business.

Potential careers for graduates include entrepreneurship and entry-level positions in business management, tourism, human resources, public administration and office administration.

Certificate

- Business Management, Applied (p. 110)

With concentrations in:

- Computer Applications (p. 110)
- Finance (p. 110)
- General Business (p. 110)
Certificate, Business Management, Applied


Minimum Requirements for Certificate: 30-36 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
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<td>General University Requirements</td>
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<td>Complete the general university requirements. (p. 94)</td>
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<td>Certificate Requirements</td>
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<tr>
<td></td>
<td>Communication</td>
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<tr>
<td></td>
<td>ABUS F170 Business English</td>
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<tr>
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<td>ABUS F271 Business Communications</td>
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<td></td>
<td>WRTG F111X Writing Across Contexts</td>
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<tr>
<td></td>
<td>Computation</td>
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</tr>
<tr>
<td></td>
<td>ABUS F155 Business Math (or any MATH course at the F100 level or above)</td>
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<td></td>
<td>A.A.S.-Approved Human Relations Course</td>
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<td></td>
<td>ABUS F154 Human Relations (recommended)</td>
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<td></td>
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<tr>
<td></td>
<td>ABUS F101 Principles of Accounting I</td>
<td>3</td>
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<tr>
<td></td>
<td>ABUS F161 Personal and Business Finance</td>
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<td></td>
<td>BA F151X Introduction to Business</td>
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<td>Complete one of the following concentrations:</td>
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<td>Finance</td>
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<td></td>
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<td></td>
<td>Office Administration</td>
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<td></td>
<td>Public Management</td>
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<td></td>
<td>Recreational Guiding</td>
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<td></td>
<td>Retail Management</td>
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<td></td>
<td>CIOS F130 Microcomputer Word Processing</td>
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<td></td>
<td>CIOS F135 Microcomputer Spreadsheets</td>
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<td>CIOS F240 Microcomputer Databases</td>
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<tr>
<td></td>
<td>CIOS F146 Using Internet Tools and Technologies</td>
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<td></td>
<td>FINANCE</td>
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<td>ABUS F210 Income Tax</td>
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<td>ABUS F234 Introduction to Investing</td>
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<td>ABUS F221 Microcomputer Accounting</td>
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<td></td>
<td>ABUS F179 Fundamentals of Supervision</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or BA F307 Introductory Human Resources Management</td>
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<td></td>
<td>Complete one of the following:</td>
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<tr>
<td></td>
<td>ABUS F232 Contemporary Management Issues</td>
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<td>ECON F202X Principles of Economics II: Macroeconomics</td>
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<td>ABUS F263 Public Relations</td>
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<td></td>
<td>BA F343 Principles of Marketing</td>
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<td>ABUS F179 Fundamentals of Supervision</td>
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<tr>
<td></td>
<td>ABUS F231 Introduction to Personnel</td>
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</tr>
<tr>
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<td>or BA F307 Introductory Human Resources Management</td>
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<tr>
<td></td>
<td>ABUS F242 Employment Law</td>
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<td>ABUS F178 Professionalism</td>
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<td>ABUS F260 Marketing Practices</td>
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<td>ABUS F263 Public Relations</td>
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<td>BA F343 Principles of Marketing</td>
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### Office Administration

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<tr>
<td>ABUS F170</td>
<td>Business English</td>
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<td>ABUS F182</td>
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Complete six credits from the following:

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<td>ABUS F183</td>
<td>Professional Skills for Job Hunt</td>
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<td>ABUS F199</td>
<td>Practicum in Applied Business</td>
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<tr>
<td>CIOS F130</td>
<td>Microcomputer Word Processing</td>
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<td>CIOS F135</td>
<td>Microcomputer Spreadsheets</td>
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<td>Computer Business Applications</td>
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### Public Management

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<td>Fund Accounting for Nonprofits</td>
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<tr>
<td>PS F100X</td>
<td>Political Economy</td>
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<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
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<tr>
<td>or ABUS F232</td>
<td>Contemporary Management Issues</td>
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<td>PS F212</td>
<td>Introduction to Public Administration</td>
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### Recreational Guiding

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<tr>
<td>ABUS F175</td>
<td>Customer Service</td>
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<td>NRM F161</td>
<td>Wilderness Leadership Education</td>
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<tr>
<td>EMS F152</td>
<td>Emergency Trauma Training First Responder</td>
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<td>More advanced Emergency First Responder Training</td>
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<td>RECR electives</td>
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### Retail Management

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<tr>
<td>ABUS F179</td>
<td>Fundamentals of Supervision ^1</td>
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</tr>
<tr>
<td>ABUS F231</td>
<td>Introduction to Personnel</td>
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</tr>
<tr>
<td>ABUS F260</td>
<td>Marketing Practices ^1</td>
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<td>CIOS F150</td>
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Complete one of the following:

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<td>COJO F121X</td>
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<td>COJO F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
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<tr>
<td>COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
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### Tourism

<table>
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<tr>
<td>ABUS F158</td>
<td>Introduction to Tourism</td>
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<td>ABUS F175</td>
<td>Customer Service</td>
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<td>ABUS F199</td>
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Complete one of the following:

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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABUS F256</td>
<td>Small Hotel, Bed and Breakfast, and Lodge Operations</td>
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<tr>
<td>ABUS F267</td>
<td>Transportation and Logistics Management</td>
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</tr>
<tr>
<td>ABUS F269</td>
<td>Food and Beverage Management</td>
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**Note:** Other courses specific to individual education and career goals may be substituted with program approval.

### Business, Applied

Community and Technical College  
907-455-2800  
http://www.ctc.uaf.edu/programs/abus/

**A.A.S. Degree, Minors**

Minimum Requirements for Degree: 60 credits

Planning and preparation are the keys to success in business. The A.A.S. degree in applied business skills and training to run a business effectively. The program covers basic knowledge and skills, emerging technologies, advanced procedures and interpersonal skills. Courses teach the principles of accounting, management, human relations, math, communications, customer service, computers, law, finance and logic. Instructors provide a practical understanding of the marketplace, not just a textbook view of business.

Potential careers for graduates include entrepreneurship and midlevel positions in business management, tourism, human resources and public administration.

**Degree**

- A.A.S., Business, Applied (p. 112)

With concentrations in:

- Administrative Management (p. 112)
- Applied Management (p. 112)
- Computer Applications (p. 112)
- Entrepreneurship (p. 112)
- Finance (p. 113)
- Health Care Management (p. 113)
- Human Resources (p. 113)
- Management (p. 113)

CIOS A261A Interpersonal Skills in Organization
COMM A111 Fundamentals of Oral Communication
COMM A237 Interpersonal Communication

^1 Courses offered via distance delivery from University of Alaska Anchorage
• Marketing (p. 113)
• Public Management (p. 113)
• Recreation and Guiding Management (p. 113)
• Tourism (p. 114)

Minors
• Minor, General Business (p. 114)
• Minor, Recreation and Guiding Management (p. 114)

A.A.S., Business, Applied


Minimum Requirements for Degree: 60 credits
Students must earn a C- grade or better in each course.

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<tr>
<th>Code</th>
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<tr>
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<td>ABUS F161</td>
<td>Personal and Business Finance</td>
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<td>Customer Service</td>
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<td>ABUS F179</td>
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<td>3</td>
</tr>
<tr>
<td>or BA F307</td>
<td>Introductory Human Resources Management</td>
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<td>ECON F202X</td>
<td>Principles of Economics II: Macroeconomics</td>
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<td>ABUS F263</td>
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<td>BA F343</td>
<td>Principles of Marketing</td>
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<td>BA F151X</td>
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<td>Finance</td>
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Marketing
Public Management
Recreation and Guiding Management
Tourism

1 As part of the A.A.S. degree requirements, it is recommended that students complete ABUS F154 for the human relations requirement.

Concentrations

ADMINISTRATIVE MANAGEMENT

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<td>Keyboarding: Document Formatting</td>
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<td>ABUS F116</td>
<td>Using 10-Key Calculators</td>
<td>1</td>
</tr>
<tr>
<td>ABUS F134</td>
<td>Alphabetic Filing</td>
<td>1</td>
</tr>
<tr>
<td>ABUS F170</td>
<td>Business Filing</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F182</td>
<td>Office Procedures</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F264</td>
<td>Filing/Records Management</td>
<td>3</td>
</tr>
<tr>
<td>ABUS, CIOS or CITS electives appropriate to skill level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete 6 credits from the following:</td>
<td></td>
</tr>
<tr>
<td>ABUS F183</td>
<td>Professional Skills for Job Hunt</td>
<td></td>
</tr>
<tr>
<td>ABUS F199</td>
<td>Practicum in Applied Business</td>
<td></td>
</tr>
<tr>
<td>CIOS F130</td>
<td>Microcomputer Word Processing</td>
<td></td>
</tr>
<tr>
<td>CIOS F135</td>
<td>Microcomputer Spreadsheets</td>
<td></td>
</tr>
<tr>
<td>CIOS F150</td>
<td>Computer Business Applications</td>
<td></td>
</tr>
</tbody>
</table>

APPLIED MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A university-approved certificate</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>A professional, technical or vocational license or certification issued by government or industry and 21 department-approved electives</td>
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</table>

COMPUTER APPLICATIONS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td>CIOS F130</td>
<td>Microcomputer Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>CIOS F135</td>
<td>Microcomputer Spreadsheets</td>
<td>3</td>
</tr>
<tr>
<td>CIOS F240</td>
<td>Microcomputer Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIOS F146</td>
<td>Using Internet Tools and Technologies</td>
<td>3</td>
</tr>
<tr>
<td>or CITS F220</td>
<td>Implementing Internet Tools and Technologies</td>
<td></td>
</tr>
<tr>
<td>CIOS F233</td>
<td>Desktop Publishing</td>
<td>3</td>
</tr>
<tr>
<td>or CIOS F255</td>
<td>Digital Graphics</td>
<td></td>
</tr>
<tr>
<td>ABUS, ACCT, BA, CITS or CIOS electives</td>
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<td></td>
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ENTREPRENEURSHIP

<table>
<thead>
<tr>
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<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td>ABUS F233</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F234</td>
<td>Introduction to Investing</td>
<td></td>
</tr>
<tr>
<td>ABUS F265</td>
<td>Seminar in Applied Marketing</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F272</td>
<td>Small-Business Planning</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F273</td>
<td>Managing a Small Business</td>
<td>3</td>
</tr>
</tbody>
</table>
ABUS F274  Business in the Digital World  3  
ABUS, ACCT, BA, CITS or CIOS electives  3  
Complete one of the following:  3  
  ABUS F201  Principles of Accounting II  
  ABUS F210  Income Tax  
  ABUS F220  Microcomputer Accounting: QuickBooks  
  ABUS F221  Microcomputer Accounting  
  ABUS F235  Fund Accounting for Nonprofits  

**FINANCE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ABUS F160</td>
<td>Principles of Banking</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F210</td>
<td>Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F220</td>
<td>Microcomputer Accounting: QuickBooks</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F221</td>
<td>Microcomputer Accounting</td>
<td></td>
</tr>
<tr>
<td>ABUS F233</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F234</td>
<td>Introduction to Investing</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F272</td>
<td>Small-Business Planning</td>
<td>3</td>
</tr>
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</table>

**HEALTH CARE MANAGEMENT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>HLTH F100</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F110</td>
<td>Professional Skills for the Workplace</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F132</td>
<td>Administrative Procedures I</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F208</td>
<td>Human Diseases</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F234</td>
<td>Administrative Procedures II</td>
<td>4</td>
</tr>
<tr>
<td>HLTH F235</td>
<td>Medical Coding</td>
<td>4</td>
</tr>
<tr>
<td>HLTH F236</td>
<td>Outpatient Health Care Reimbursement</td>
<td>3</td>
</tr>
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**HUMAN RESOURCES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ABUS F141</td>
<td>Payroll Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F178</td>
<td>Professionalism</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F231</td>
<td>Introduction to Personnel</td>
<td>3</td>
</tr>
<tr>
<td>or BA F307</td>
<td>Introductory Human Resources Management</td>
<td></td>
</tr>
<tr>
<td>ABUS F242</td>
<td>Employment Law</td>
<td>3</td>
</tr>
<tr>
<td>or BA F317</td>
<td>Employment Law</td>
<td></td>
</tr>
<tr>
<td>CIOS F135</td>
<td>Microcomputer Spreadsheets</td>
<td>3</td>
</tr>
<tr>
<td>CIOS F240</td>
<td>Microcomputer Databases</td>
<td>3</td>
</tr>
<tr>
<td>ABUS, ACCT, BA or CIOS electives</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**MANAGEMENT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS, ACCT, BA, ECON, MATH or STAT or other department-approved electives</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recommended courses include:</td>
<td></td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Essential Precalculus with Applications</td>
<td></td>
</tr>
<tr>
<td>MATH F230X</td>
<td>Essential Calculus with Applications</td>
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</table>

**MARKETING**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON F100X</td>
<td>Political Economy</td>
<td></td>
</tr>
<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON F202X</td>
<td>Principles of Economics II: Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON F227</td>
<td>Introductory Statistics for Economics and Business</td>
<td></td>
</tr>
<tr>
<td>BA F254X</td>
<td>Personal Finance (s)</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td></td>
</tr>
<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
<td></td>
</tr>
<tr>
<td>ABUS F202</td>
<td>Principles of Accounting III</td>
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</tbody>
</table>

**RECREATION AND GUIDING MANAGEMENT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS F152</td>
<td>Emergency Trauma Training First Responder</td>
<td></td>
</tr>
<tr>
<td>EMS F195</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>More advanced Emergency First Responder Training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TOURISM

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F158</td>
<td>Introduction to Tourism</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F199</td>
<td>Practicum in Applied Business</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F265</td>
<td>Seminar in Applied Marketing</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F273</td>
<td>Managing a Small Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 3 credits from the following electives:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F256</td>
<td>Small Hotel, Bed and Breakfast, and Lodge Operations</td>
<td></td>
</tr>
<tr>
<td>ABUS F267</td>
<td>Transportation and Logistics Management</td>
<td></td>
</tr>
<tr>
<td>ABUS F269</td>
<td>Food and Beverage Management</td>
<td></td>
</tr>
</tbody>
</table>

Complete one of the following elective options:

**Option 1**
- ABUS, ACCT, BA, CAH or CIOS electives

**Option 2**
- ABUS F299 Practicum in Applied Business (Study Abroad)

To complete the Minor, Applied Business — General Business, you must complete a minimum of 18 credits.

**Minors, Applied Business — General Business**

Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F101</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F161</td>
<td>Personal and Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F175</td>
<td>Customer Service</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F260</td>
<td>Marketing Practices</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F263</td>
<td>Public Relations</td>
<td></td>
</tr>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following:

- ABUS F232 Contemporary Management Issues
- ABUS F272 Small-Business Planning
- ABUS F273 Managing a Small Business

Note: Other courses specific to individual education and career goals may be substituted with program approval.

**Community Health**

College of Rural and Community Development
907-474-7143

Certificate; A.A.S. Degree

Minimum Requirements for Certificate: 34 credits; for Degree: 60 credits

The community health aide/practitioner (CHA/P) training program prepares students to provide primary health care services in villages, under the supervision of a referral physician. As a prerequisite, students entering the program must be employed by a regional health corporation.

The educational program consists of four basic training sessions, each four weeks long and followed by a field component in the community health aide’s village clinic. The curriculum includes the knowledge and skills necessary to provide acute care for common medical problems, emergency care, follow-up care for patients with chronic illnesses, and preventive services including prenatal and well-child care. The training also includes state-approved emergency care courses, completion of a skills checklist, a supervised clinical preceptorship, and passing the community health practitioner (CHP) statewide examination.

Upon successful completion of all certification requirements, students are awarded a CHP certificate by the training center. Students completing the training program also meet the requirements for a university certificate recognizing the credits earned. These credits may be used to satisfy requirements for the A.A.S. degree.

The CHA/P academic review committee (ARC), composed of representatives from the regional health corporations, training centers and university, ensures that the curriculum and certification process is kept uniform throughout the state. The ARC reports to the Association of CHA/P Program Directors and serves in an advisory role to the executive dean for Rural, Community and Native Education.

For more information about the CHA/P basic training program, contact one of the CHA/P training centers. For more information about the A.A.S. degree, contact the College of Rural and Community Development health programs office at 907-786-1630.

Degree

- A.A.S., Community Health (p. 114)

Certificate

- Community Health (p. 115)

A.A.S., Community Health

Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

RECR electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NRM F361</td>
<td>Advanced Wilderness Leadership Education</td>
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</table>

Note: Other courses specific to individual education and career goals may be substituted with program approval.
### Minimum Requirements for Certificate: 34 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHP F131</td>
<td>Community Health Aide I</td>
<td>8</td>
</tr>
<tr>
<td>CHP F132</td>
<td>Community Health Aide II</td>
<td>8</td>
</tr>
<tr>
<td>CHP F133</td>
<td>Community Health Aide III</td>
<td>8</td>
</tr>
<tr>
<td>CHP F134</td>
<td>Community Health Aide IV</td>
<td>8</td>
</tr>
<tr>
<td>CHP F135</td>
<td>Community Health Aide Preceptorship</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>CHP F203</td>
<td>Clinical Update for Community Health Practitioners</td>
<td>5</td>
</tr>
<tr>
<td>CHP F207</td>
<td>Maternal and Infant Health</td>
<td></td>
</tr>
<tr>
<td>CHP F208</td>
<td>Communicable Diseases</td>
<td></td>
</tr>
<tr>
<td>CHP F211</td>
<td>Health Education</td>
<td></td>
</tr>
<tr>
<td>CHP F212</td>
<td>Diabetes: Primary Prevention and Village Medical Care</td>
<td></td>
</tr>
<tr>
<td>CHP F214</td>
<td>Cancer: Risks, Diagnosis and Treatment</td>
<td></td>
</tr>
<tr>
<td>CHP F215</td>
<td>Death and Dying</td>
<td></td>
</tr>
<tr>
<td>CHP F220</td>
<td>Women's Health: Breast and Cervical Cancer Screening</td>
<td></td>
</tr>
<tr>
<td>CHP F250</td>
<td>Current Issues in Rural Health Care</td>
<td></td>
</tr>
<tr>
<td>CHP F293</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>EMS — any F200-level courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLTH — any F200-level courses</td>
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</table>

1. May repeat up to 3 credits toward A.A.S. degree.

### Certificate, Community Health

#### Minimum Requirements for Certificate: 34 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>CHP F131</td>
<td>Community Health Aide I</td>
<td>8</td>
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<tr>
<td>CHP F132</td>
<td>Community Health Aide II</td>
<td>8</td>
</tr>
<tr>
<td>CHP F133</td>
<td>Community Health Aide III</td>
<td>8</td>
</tr>
<tr>
<td>CHP F134</td>
<td>Community Health Aide IV</td>
<td>8</td>
</tr>
<tr>
<td>CHP F135</td>
<td>Community Health Aide Preceptorship</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>CHP F203</td>
<td>Clinical Update for Community Health Practitioners</td>
<td>5</td>
</tr>
<tr>
<td>CHP F207</td>
<td>Maternal and Infant Health</td>
<td></td>
</tr>
<tr>
<td>CHP F208</td>
<td>Communicable Diseases</td>
<td></td>
</tr>
<tr>
<td>CHP F211</td>
<td>Health Education</td>
<td></td>
</tr>
<tr>
<td>CHP F212</td>
<td>Diabetes: Primary Prevention and Village Medical Care</td>
<td></td>
</tr>
<tr>
<td>CHP F214</td>
<td>Cancer: Risks, Diagnosis and Treatment</td>
<td></td>
</tr>
<tr>
<td>CHP F215</td>
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<td></td>
</tr>
<tr>
<td>CHP F220</td>
<td>Women's Health: Breast and Cervical Cancer Screening</td>
<td></td>
</tr>
<tr>
<td>CHP F250</td>
<td>Current Issues in Rural Health Care</td>
<td></td>
</tr>
<tr>
<td>CHP F293</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>EMS — any F200-level courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLTH — any F200-level courses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. As part of the certificate requirements, the communication, computation and human relations content is embedded in some of the major required courses for this program.

### A.A.S. Degree

#### Minimum Requirements for Degree: 62 credits

The construction management program meets growing needs in the construction industry by training entry-level construction managers and by providing continuing education for construction employees.

Construction managers plan, direct and are responsible for oversight of construction projects. They are responsible for coordinating and managing people, materials and equipment; budgets, schedules and contracts; and the safety of employees and the general public. Construction managers determine construction means and methods and the most cost-effective plans and schedules. They track construction costs and administer contract changes to the project budget to maximize profitability. Construction managers monitor work progress to ensure compliance with architectural and engineering drawings and specifications.

Construction managers work in all phases of the construction business — for public and private owners; from small, multifamily projects to large skyscrapers and industrial projects; and from rural roads to major highways. Construction managers work closely with architects, engineers, owners and the various contractors on a construction job. The construction manager’s duties are varied, challenging and rewarding.

UAF’s construction management program was developed with input from local contractors and professional industry organizations. It gives students broad knowledge of building systems and construction techniques. CM graduates understand basic principles of business and know about the technical aspects of the construction industry. Graduates are able to function both in the construction office and on the job site.

The CM A.A.S. degree requires four to five semesters to complete. While not a prerequisite, it is recommended that students applying for admission have experience in the construction industry.

### A.A.S., Construction Management

#### Minimum Requirements for Degree: 62 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F101</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>CM F102</td>
<td>Methods of Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>CM F123</td>
<td>Codes and Standards</td>
<td>3</td>
</tr>
<tr>
<td>CM F142</td>
<td>Mechanical and Electrical Technology</td>
<td>3</td>
</tr>
<tr>
<td>CM F163</td>
<td>Building Construction Cost Estimating</td>
<td>3</td>
</tr>
<tr>
<td>CM F201</td>
<td>Construction Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CM F202</td>
<td>Project Planning and Scheduling</td>
<td>3</td>
</tr>
<tr>
<td>CM F205</td>
<td>Construction Safety</td>
<td>3</td>
</tr>
</tbody>
</table>

1. As part of the certificate requirements, the communication, computation and human relations content is embedded in some of the major required courses for this program.

### Construction Management

Community and Technical College  
907-455-2846  
http://www.ctc.uaf.edu/programs/cm/
1 As part of the A.A.S. degree requirement complete WRTG F111X, WRTG F212X or WRTG F213X, and COJO F131X or COJO F141X for the communications requirement, and MATH F151X for the computation requirement. The human relations content is embedded in some of the major required courses for this program.

Construction Trades Technology

College of Rural and Community Development
907-474-7143
http://www.uaf.edu/iac/

Certificate

Minimum Requirements for Certificate: 30 credits

The construction trades technology program is designed to prepare students to work in the construction industry, including in locations with a projected shortage of skilled workers.

This program gives students fundamental knowledge of construction industry expectations in carpentry, facility maintenance and sustainable energy, as well as hands-on training. It responds to the skills targeted by Alaskan employers.

A strong desire to work in the construction industry is important. Students must be willing to work collaboratively with industry employees in their local communities to fulfill the practicum components of courses.

Certificate

- Construction Trades Technology (p. 116)

Certificate, Construction Trades Technology

Minimum Requirements for Certificate: 30 credits

Students must earn a C- or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTT F106</td>
<td>Construction Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>or TTCH F131</td>
<td>Mathematics for the Trades</td>
<td></td>
</tr>
</tbody>
</table>

Certificate Requirements

Complete the certificate requirements. (p. 96) 1

As part of the certificate requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTT F100</td>
<td>Construction Technology Core</td>
<td>3</td>
</tr>
<tr>
<td>or CTT F101</td>
<td>Basic Construction Safety</td>
<td></td>
</tr>
<tr>
<td>and CTT F102</td>
<td>and Introduction to Hand and Power Tools</td>
<td></td>
</tr>
<tr>
<td>and CTT F103</td>
<td>and Introduction to Blueprint Reading</td>
<td></td>
</tr>
</tbody>
</table>

Concentrations

Complete one of the following concentrations: 17-23.5

Carpentry

Facility Maintenance

Sustainable Energy

1 As part of the certificate requirement, complete 3 credits each in the communication and human relations requirements.

Concentrations

CARPENTRY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTT F110</td>
<td>Residential Carpentry I</td>
<td>8.5</td>
</tr>
<tr>
<td>or CTT F111</td>
<td>and Materials and Tools Used in the Trade</td>
<td></td>
</tr>
<tr>
<td>and CTT F112</td>
<td>and Floor Systems, Wall and Ceiling Framing</td>
<td></td>
</tr>
<tr>
<td>and CTT F113</td>
<td>and Roof Framing, Windows and Exterior Doors</td>
<td></td>
</tr>
<tr>
<td>and CTT F114</td>
<td>and Introduction to Concrete Materials and Forms</td>
<td></td>
</tr>
</tbody>
</table>

FACILITY MAINTENANCE

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTT F130</td>
<td>Introduction to Facilities Maintenance</td>
<td>1</td>
</tr>
<tr>
<td>CTT F131</td>
<td>Interior Repairs: Drywall, Woodwork Trim, Window Replacement</td>
<td></td>
</tr>
<tr>
<td>CTT F132</td>
<td>Flooring Installation: Vinyl, Wood and Parquet</td>
<td></td>
</tr>
<tr>
<td>CTT F133</td>
<td>Cabinet Installation with Countertops</td>
<td>1</td>
</tr>
<tr>
<td>CTT F135</td>
<td>Boiler Troubleshooting and Burner Repair</td>
<td>2</td>
</tr>
<tr>
<td>CTT F137</td>
<td>Appliance Troubleshooting and Repair</td>
<td>2</td>
</tr>
<tr>
<td>CTT F138</td>
<td>Residential Heating Controls</td>
<td>2</td>
</tr>
<tr>
<td>CTT F151</td>
<td>Introduction to Plumbing Tools and Drawings</td>
<td></td>
</tr>
<tr>
<td>CTT F153</td>
<td>Plastic and Copper Pipe and Fittings</td>
<td>1</td>
</tr>
<tr>
<td>Other advisor approved electives related to the concentration</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CTT F199</td>
<td>Student Practicum I 1</td>
<td>1-3</td>
</tr>
</tbody>
</table>

1 Students must take a minimum of 2 credits in CTT F199.

SUSTAINABLE ENERGY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEV F105</td>
<td>Intermediate Algebra</td>
<td>3</td>
</tr>
<tr>
<td>ENVI F220</td>
<td>Introduction to Sustainable Energy</td>
<td>3</td>
</tr>
<tr>
<td>Complete at least 9 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS S201</td>
<td>Cold Climate Construction 1</td>
<td></td>
</tr>
</tbody>
</table>
CTT F100  Construction Technology Core
CTT F160  Photovoltaic Systems I
CTT F161  Photovoltaic Systems II
CTT F250  Current Topics in Construction Trades
ENVI F101  Introduction to Environmental Science
ENVI F120  Home Energy Basics
PHYS F102X  Energy and Society

Other advisor approved courses related to the concentration

CTT F199  Student Practicum I

1 Total Credits 18

1 CT S201 is offered by University of Alaska Southeast.
2 Students must take a minimum of 3 credits in CTT F199.

Culinary Arts and Hospitality
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/culinary/

Certificate, A.A.S. Degree

Minimum Requirements for Certificates: 30 credits; for Degree: 60 credits

The culinary arts and hospitality program prepares students for careers in this ever-expanding field. Graduates can seek employment in various food service operations or in management of restaurants, bakeries, hotels, hospitals, camps or any other facility that requires food service as part of its operation. Certificates in culinary arts or baking and pastry arts as well as an associate degree in culinary arts are offered.

Degree

• A.A.S., Culinary Arts and Hospitality (p. 117)

Certificates

• Culinary Arts (p. 117)
• Baking and Pastry Arts (p. 117)

A.A.S., Culinary Arts and Hospitality

Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAH F101</td>
<td>Introduction to the Culinary Field</td>
<td>1</td>
</tr>
<tr>
<td>CAH F140</td>
<td>Culinary I: Principles and Techniques</td>
<td>4</td>
</tr>
<tr>
<td>CAH F141</td>
<td>Culinary II: Stocks, Soups and Sauces</td>
<td>4</td>
</tr>
<tr>
<td>CAH F146</td>
<td>Introduction to Baking and Pastry</td>
<td>4</td>
</tr>
<tr>
<td>CAH F150</td>
<td>Food Service Sanitation</td>
<td>2</td>
</tr>
<tr>
<td>CAH F154</td>
<td>Food and Beverage Service</td>
<td>2</td>
</tr>
<tr>
<td>CAH F160</td>
<td>Principles of Nutrition</td>
<td>2</td>
</tr>
<tr>
<td>CAH F175</td>
<td>Protein Fabrication</td>
<td>3</td>
</tr>
<tr>
<td>CAH F199</td>
<td>Culinary Arts Externship</td>
<td>2</td>
</tr>
<tr>
<td>CAH F230</td>
<td>Menu Planning</td>
<td>1</td>
</tr>
<tr>
<td>CAH F242</td>
<td>Culinary III: Vegetables and Starch</td>
<td>4</td>
</tr>
<tr>
<td>CAH F243</td>
<td>Culinary IV: A la Carte Cookery</td>
<td>4</td>
</tr>
<tr>
<td>CAH F248</td>
<td>Intermediate Baking and Pastry</td>
<td>4</td>
</tr>
<tr>
<td>CAH F250</td>
<td>Garde Manger</td>
<td>4</td>
</tr>
<tr>
<td>CAH F253</td>
<td>Storeroom Purchasing and Receiving</td>
<td>2</td>
</tr>
<tr>
<td>CAH F256</td>
<td>Restaurant and Hospitality Cost Management</td>
<td>2</td>
</tr>
</tbody>
</table>

As part of the degree requirement, CAH F255 is recommended to complete the human relations requirement.

Certificate, Baking and Pastry Arts

Minimum Requirements for Certificates: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAH F101</td>
<td>Introduction to the Culinary Field</td>
<td>1</td>
</tr>
<tr>
<td>CAH F140</td>
<td>Culinary I: Principles and Techniques</td>
<td>4</td>
</tr>
<tr>
<td>CAH F146</td>
<td>Introduction to Baking and Pastry</td>
<td>4</td>
</tr>
<tr>
<td>CAH F150</td>
<td>Food Service Sanitation</td>
<td>2</td>
</tr>
<tr>
<td>CAH F154</td>
<td>Food and Beverage Service</td>
<td>2</td>
</tr>
<tr>
<td>CAH F160</td>
<td>Principles of Nutrition</td>
<td>2</td>
</tr>
<tr>
<td>CAH F117</td>
<td>Art in Cake Icing</td>
<td>6-9</td>
</tr>
<tr>
<td>CAH F154</td>
<td>Food and Beverage Service</td>
<td></td>
</tr>
<tr>
<td>CAH F160</td>
<td>Principles of Nutrition</td>
<td></td>
</tr>
<tr>
<td>CAH F161</td>
<td>Pastry Tube Art</td>
<td></td>
</tr>
<tr>
<td>CAH F171</td>
<td>Gourmet Baking</td>
<td></td>
</tr>
<tr>
<td>CAH F176</td>
<td>Techniques of Healthy Cooking</td>
<td></td>
</tr>
<tr>
<td>CAH F180</td>
<td>Artisan Breads</td>
<td></td>
</tr>
<tr>
<td>CAH F181</td>
<td>International Breads</td>
<td></td>
</tr>
<tr>
<td>CAH F230</td>
<td>Menu Planning</td>
<td></td>
</tr>
</tbody>
</table>

As part of the certificate requirements, CAH F256 is recommended to complete the computation requirement and CAH F255 is recommended to complete the human relations requirement.

Certificate, Culinary Arts

Minimum Requirements for Certificates: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAH F101</td>
<td>Introduction to the Culinary Field</td>
<td>1</td>
</tr>
<tr>
<td>CAH F140</td>
<td>Culinary I: Principles and Techniques</td>
<td>4</td>
</tr>
<tr>
<td>CAH F146</td>
<td>Introduction to Baking and Pastry</td>
<td>4</td>
</tr>
</tbody>
</table>
Diesel/Heavy Equipment

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/diesel/

Certificate

Minimum Requirements for Certificate: 36 credits

The diesel and heavy equipment mechanics program offers training in the maintenance and repair of trucks, buses and heavy equipment. This one-year certificate program emphasizes hands-on training and in-class experience as students perform preventive maintenance inspections, determine causes of equipment problems and make necessary repairs and adjustments from tune-ups to complete engine and equipment overhauls. Students work on large truck fuel, electrical and air systems, diesel engines, transmissions, differentials, crawler tractor undercarriages, steering and final drives. A student may request credit by examination for any DSLT or MECN class. See department coordinator for details.

Certificate, Diesel/Heavy Equipment

Minimum Requirements for Certificate: 36 credits

Students must earn a C or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSLT F101</td>
<td>Safety Including Rigging and Lifting</td>
<td>1</td>
</tr>
<tr>
<td>DSLT F103</td>
<td>Basic Equipment and Truck Operation</td>
<td>1</td>
</tr>
<tr>
<td>DSLT F105</td>
<td>Preventive Maintenance</td>
<td>3</td>
</tr>
</tbody>
</table>

As part of the certificate requirements, CAH F256 is recommended to complete the computation requirement and CAH F255 is recommended to complete the human relations requirement.

Drafting Technology

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/drafting/

Certificate; A.A.S. Degree

Minimum Requirements for Certificate: 33-34 credits; for Degree: 60-63 credits

The drafting technology programs combine focused training in computer-aided drafting with a well-rounded exposure to the professions, trades and materials common to construction in Alaska. Courses combine technical CAD training with the vocabulary and knowledge needed to communicate with future employers in the architectural, engineering and construction fields. Students develop skills in mathematics, drawing and multifunctional CAD techniques. Students are instructed in traditional drawing techniques, CAD, and building information modeling technologies, giving them the knowledge and flexibility to work traditionally and with the most recent drafting technologies. Required courses cover many aspects of design and construction, including building materials, codes, and civil, mechanical, electrical and structural technologies. Qualified students have the opportunity to work side-by-side with professionals from the architectural and engineering community in internships, gaining valuable on-the-job experience.

Students entering the certificate program are expected to have computer skills equivalent to CIOS F150.

Certificate, A.A.S., Drafting Technology

Minimum Requirements for Degree: 60-63 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSLT F101</td>
<td>Safety Including Rigging and Lifting</td>
<td>1</td>
</tr>
<tr>
<td>DSLT F103</td>
<td>Basic Equipment and Truck Operation</td>
<td>1</td>
</tr>
<tr>
<td>DSLT F105</td>
<td>Preventive Maintenance</td>
<td>3</td>
</tr>
</tbody>
</table>

As part of the certificate requirements, the communication, human relations and computation content is embedded in the major required courses for this program.
Complete the general university requirements. (p. 94)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 100)

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRT F101</td>
<td>Introduction to Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRT F140</td>
<td>Architectural Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRT F150</td>
<td>Civil Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRT F170</td>
<td>Beginning CAD</td>
<td>3</td>
</tr>
<tr>
<td>DRT F210</td>
<td>Intermediate CAD</td>
<td>3</td>
</tr>
<tr>
<td>DRT F270</td>
<td>Advanced CAD</td>
<td>3</td>
</tr>
<tr>
<td>DRT F145</td>
<td>Structural Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRT F155</td>
<td>Mechanical and Electrical Drafting</td>
<td>3</td>
</tr>
<tr>
<td>CM F102</td>
<td>Methods of Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>CM F123</td>
<td>Codes and Standards</td>
<td>3</td>
</tr>
<tr>
<td>CM F142</td>
<td>Mechanical and Electrical Technology</td>
<td>3</td>
</tr>
<tr>
<td>CM F213</td>
<td>Civil Technology</td>
<td>3</td>
</tr>
<tr>
<td>CM F231</td>
<td>Structural Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 3-6 credits from the following electives: 3-6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRT F121</td>
<td>Construction Documents and Drawings</td>
<td></td>
</tr>
<tr>
<td>DRT F260</td>
<td>Drafting Internship</td>
<td></td>
</tr>
<tr>
<td>CM F201</td>
<td>Construction Project Management</td>
<td></td>
</tr>
<tr>
<td>ES F101</td>
<td>Introduction to Engineering</td>
<td></td>
</tr>
</tbody>
</table>

1 This elective requires additional math prerequisites.

Certificate, Drafting Technology

Minimum Requirements for Certificate: 33-34 credits
Concentrations: Architectural Drafting, Civil Drafting, Information Technology, Mechanical and Electrical Drafting, Process Technology, and Structural Drafting

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 94)</td>
<td></td>
</tr>
</tbody>
</table>

Certificate Requirements
Complete the certificate requirements. (p. 96)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRT F101</td>
<td>Introduction to Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRT F121</td>
<td>Construction Documents and Drawings</td>
<td>3</td>
</tr>
<tr>
<td>DRT F170</td>
<td>Beginning CAD</td>
<td>3</td>
</tr>
<tr>
<td>DRT F210</td>
<td>Intermediate CAD</td>
<td>3</td>
</tr>
<tr>
<td>DRT F270</td>
<td>Advanced CAD</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentrations
Complete one from the following concentrations: 9-10

Architectural Drafting
Civil Drafting
Information Technology
Mechanical and Electrical Drafting
Process Technology
Structural Drafting

Concentrations

ARCHITECTURAL DRAFTING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM F102</td>
<td>Methods of Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>CM F123</td>
<td>Codes and Standards</td>
<td>3</td>
</tr>
<tr>
<td>DRT F140</td>
<td>Architectural Drafting</td>
<td>3</td>
</tr>
</tbody>
</table>

CIVIL DRAFTING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM F102</td>
<td>Methods of Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>CM F213</td>
<td>Civil Technology</td>
<td>3</td>
</tr>
<tr>
<td>DRT F150</td>
<td>Civil Drafting</td>
<td>3</td>
</tr>
</tbody>
</table>

INFORMATION TECHNOLOGY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CITS F203</td>
<td>Information Technology Support Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>CITS F204</td>
<td>Introduction to Network Support and Administration</td>
<td>3</td>
</tr>
<tr>
<td>CITS F261</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
</tbody>
</table>

MECHANICAL AND ELECTRICAL DRAFTING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM F102</td>
<td>Methods of Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>CM F142</td>
<td>Mechanical and Electrical Technology</td>
<td>3</td>
</tr>
<tr>
<td>DRT F155</td>
<td>Mechanical and Electrical Drafting</td>
<td>3</td>
</tr>
</tbody>
</table>

PROCESS TECHNOLOGY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRT F101</td>
<td>Introduction to Process Technology</td>
<td>3</td>
</tr>
<tr>
<td>PRT F110</td>
<td>Introduction to Occupational Safety, Health and Environmental Awareness</td>
<td>3</td>
</tr>
<tr>
<td>PRT F117</td>
<td>Drafting for Technicians</td>
<td>3</td>
</tr>
</tbody>
</table>

STRUCTURAL DRAFTING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM F102</td>
<td>Methods of Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>CM F231</td>
<td>Structural Technology</td>
<td>3</td>
</tr>
<tr>
<td>DRT F145</td>
<td>Structural Drafting</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: DRT F260 may be substituted for concentration-specific DRT courses with program approval.

Early Childhood Education

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800
Certificate, A.A.S. Degree

Minimum Requirements for Degree: 60 credits

All courses are offered in Fairbanks and through distance delivery for students outside Fairbanks. This program prepares students for employment as early childhood teachers, K-3 teachers aides and child care providers, and improves the skills of those already in the field.

Graduates pursue opportunities with child development centers, Head Start programs, child welfare service agencies, recreation and scouting services, staff training, program licensing and entrepreneurial initiatives serving children and families. This program is guided by standards specified by the National Association for the Education of Young Children.

The A.A.S. program in early childhood education is for students enrolling in college for the first time as well as for those who are educated in other subject areas but desire to retrain for employment in this field. Through course work, including fieldwork directly with children, students gain the knowledge and skills they need to meet State of Alaska requirements for employment as administrators or teachers in licensed centers and as aides in elementary schools. Course work also fulfills minor or concentration requirements for degrees in other disciplines. Students entering the A.A.S. degree should meet with an early childhood advisor to discuss a specific course of study. The courses for the A.A.S. degree lay the foundation for the B.A. in child development and family studies or can be combined with other disciplines to make a specific focus on young children in areas such as science, movement, leadership, business or creative arts.

Degrees

- A.A.S., Early Childhood Education (p. 120)

Minors

- Minor, Early Childhood Education (p. 121)

Certificate

- Certificate, Early Childhood Education (p. 120)

A.A.S., Early Childhood Education

Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F130</td>
<td>Culture, Learning and the Young Child</td>
<td>2</td>
</tr>
<tr>
<td>ECE F132</td>
<td>Young Child and the Family</td>
<td>1</td>
</tr>
<tr>
<td>or LS F101X</td>
<td>Library Information and Research</td>
<td></td>
</tr>
<tr>
<td>ECE F140</td>
<td>Positive Social and Emotional Development</td>
<td>3</td>
</tr>
<tr>
<td>ECE F210</td>
<td>Child Guidance</td>
<td>3</td>
</tr>
<tr>
<td>ECE F213</td>
<td>Curriculum: Thinking, Reasoning and Discovery</td>
<td>3</td>
</tr>
<tr>
<td>ECE F214</td>
<td>Infants and Toddlers</td>
<td>3</td>
</tr>
<tr>
<td>ECE F229</td>
<td>Foundations in Nutrition and Physical Wellness</td>
<td>3</td>
</tr>
<tr>
<td>ECE F235</td>
<td>Screening, Assessment and Recording</td>
<td>3</td>
</tr>
<tr>
<td>ECE F240</td>
<td>Inclusion of Children with Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>ECE F242</td>
<td>Child and Family Ecology (or other advisor-approved family class)</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F342</td>
<td>Family Relationships</td>
<td></td>
</tr>
<tr>
<td>ECE F170</td>
<td>Practicum I</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F299</td>
<td>Practicum for CDAs</td>
<td></td>
</tr>
<tr>
<td>ECE F270</td>
<td>Practicum II</td>
<td>3</td>
</tr>
</tbody>
</table>

1 As part of the A.A.S. degree requirements, complete ECE F117 or any course at the F100 level or above in mathematical sciences for the computation requirement, and either ECE F104X or ECE F107 for the human relations requirement.

Certificate, Early Childhood Education

Minimum Requirements for Degree: 34 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F117</td>
<td>Math Skills for Early Childhood Educators</td>
<td>3</td>
</tr>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Contexts</td>
<td>3</td>
</tr>
<tr>
<td>or any other math course at the 100 level or above.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete the following human relations course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F107</td>
<td>Child Development II: The Preschool and Primary Years</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete the following major requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F101</td>
<td>Introduction to Early Childhood Profession</td>
<td>3</td>
</tr>
<tr>
<td>ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
<td>3</td>
</tr>
<tr>
<td>ECE F110</td>
<td>Safe, Healthy Learning Environments</td>
<td>3</td>
</tr>
<tr>
<td>ECE F119</td>
<td>Curriculum I: Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F170</td>
<td>Practicum I</td>
<td></td>
</tr>
<tr>
<td>or ECE F299</td>
<td>Practicum for CDAs</td>
<td></td>
</tr>
<tr>
<td>ECE F119</td>
<td>Curriculum I: Principles and Practices</td>
<td>3</td>
</tr>
</tbody>
</table>
Minor, Early Childhood Education

Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F132</td>
<td>Young Child and the Family</td>
<td>1</td>
</tr>
<tr>
<td>ECE F140</td>
<td>Positive Social and Emotional Development</td>
<td>3</td>
</tr>
<tr>
<td>ECE F213</td>
<td>Curriculum: Thinking, Reasoning and</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Discovery</td>
<td></td>
</tr>
<tr>
<td>or ECE F214</td>
<td>Infants and Toddlers</td>
<td></td>
</tr>
<tr>
<td>ECE F229</td>
<td>Foundations in Nutrition and Physical</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Wellness</td>
<td></td>
</tr>
</tbody>
</table>

Environmental Studies

Certificate

Minimum Requirements for Certificate: 30-35 credits

This program addresses many of the environmental issues influencing Alaska communities and provides basic academic preparation for entry-level vocational environmental careers. The program serves as a steppingstone into science-related associate or baccalaureate programs.

This program may be especially of interest to individuals employed by and/or interested in employment with state, federal or tribal agencies or other groups providing natural resource management services. It is recommended that students have completed a high school lab-based science, biology or chemistry course as well as algebra due to the science focus of this program.

Certificate

- Environmental Studies (p. 121)

Certificate, Environmental Studies

Minimum Requirements for Certificate: 30-35 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 94)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Certificate Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the certificate requirements. (p. 96)</td>
<td></td>
</tr>
</tbody>
</table>

Communication

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Contexts</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F170</td>
<td>Business English</td>
<td></td>
</tr>
</tbody>
</table>

Computation

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVM F105</td>
<td>Intermediate Algebra (or MATH/CS/STAT at the 100 level or higher)</td>
<td>3</td>
</tr>
</tbody>
</table>

Human Relations

Complete one of the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F100X</td>
<td>Individual, Society and Culture</td>
<td></td>
</tr>
<tr>
<td>or SOC F101X</td>
<td>Introduction to Sociology</td>
<td></td>
</tr>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
<td></td>
</tr>
<tr>
<td>Other program-approved discipline-based human relations course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI F101</td>
<td>Introduction to Environmental Science</td>
<td>3</td>
</tr>
<tr>
<td>ENVI F110</td>
<td>Introduction to Water Quality I: Measurement</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F130</td>
<td>Introduction to the National Environmental Policy Act</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F160</td>
<td>Internship in Environmental Studies</td>
<td>1:2</td>
</tr>
<tr>
<td>ENVI F260</td>
<td>Field Techniques for Environmental Technicians</td>
<td>2</td>
</tr>
<tr>
<td>ENVI F265</td>
<td>Introduction to Methods in Environmental Studies Reporting</td>
<td>2</td>
</tr>
</tbody>
</table>

Complete two from the following science foundation courses: 8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
<td></td>
</tr>
<tr>
<td>BIOL F103X</td>
<td>Biology and Society</td>
<td></td>
</tr>
<tr>
<td>BIOL F104X</td>
<td>Natural History of Alaska</td>
<td></td>
</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td></td>
</tr>
<tr>
<td>CHEM F103X</td>
<td>Introduction to General Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
<td></td>
</tr>
<tr>
<td>MSL F111X</td>
<td>The Oceans</td>
<td></td>
</tr>
</tbody>
</table>

Complete one of the following electives: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
<td></td>
</tr>
<tr>
<td>BIOL F104X</td>
<td>Natural History of Alaska</td>
<td></td>
</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td></td>
</tr>
<tr>
<td>CHEM F104X</td>
<td>Introduction to Organic Chemistry and Biochemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>FISH F101</td>
<td>Introduction to Fisheries</td>
<td></td>
</tr>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
<td></td>
</tr>
<tr>
<td>HLRM F130</td>
<td>Research Field Logistics</td>
<td></td>
</tr>
<tr>
<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
<td></td>
</tr>
<tr>
<td>RD F250</td>
<td>Grant Writing for Community Development</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td></td>
</tr>
<tr>
<td>Advisor-approved elective</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

1 Cannot be used for elective credit if used as computational credit.

2 Similar level and subject matter.
Ethnobotany
College of Rural and Community Development
907-474-7143
http://www.bethel.uaf.edu

Certificate
Minimum Requirements for Certificate: 30-32 credits

The ethnobotany certificate program involves interdisciplinary study of the role of native plants in indigenous cultures. Students will learn about native plants and their uses and ecology in the context of their cultural, social and economic importance by combining scientific and anthropological concepts and methods. The program emphasizes culturally relevant, place-based courses that highlight the ways this information contributes to other fields of study, such as cultural and natural resources management, community development, adaptive resilience, and human health. It is also designed to serve as a bridge to a variety of associate and baccalaureate programs in natural science and liberal arts.

This program may be especially of interest to individuals employed by or interested in employment with state, federal or tribal agencies or other local entities in rural Alaska which provide natural resource management services.

Admission requires a high school diploma or GED and interest in science-related fields. It is highly recommended that students have completed two high school lab-based science courses, preferably in biology, chemistry or physics.

Students whose ACT/SAT scores are not sufficient for placement into college-level courses must take the ASSET or ACCUPLACER test and be placed in the appropriate developmental-level course.

Minor
Minimum Requirements for Minor: 15 credits

The minor in ethnobotany allows students who have completed the ethnobotany certificate program the opportunity to continue their studies and earn a baccalaureate degree focused on the relationship of plants and humans. It also provides students who are not in the EBOT certificate program with the option of fitting ethnobotany courses into their current DANSRD or other baccalaureate program.

Certificate
- Ethnobotany (p. 122)

Minor
- Ethnobotany (p. 122)

Certificate, Ethnobotany
Minimum Requirements for Certificate: 30-32 credits

Students must earn a C- or better in each course unless otherwise designated.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBOT F100</td>
<td>Introduction to Ethnobotany</td>
<td>3</td>
</tr>
<tr>
<td>EBOT F200</td>
<td>Seminar in Ethnobotany</td>
<td>1</td>
</tr>
<tr>
<td>EBOT F210</td>
<td>Ethical Wildcrafting</td>
<td>1</td>
</tr>
<tr>
<td>EBOT F220</td>
<td>Ethnobotanical Techniques</td>
<td>2</td>
</tr>
<tr>
<td>EBOT F230</td>
<td>Ethnobotanical Chemistry</td>
<td>3-4</td>
</tr>
<tr>
<td>or EBOT F250</td>
<td>Applied Ethnobotany Fall</td>
<td></td>
</tr>
<tr>
<td>and EBOT F251</td>
<td>Applied Ethnobotany Spring</td>
<td></td>
</tr>
</tbody>
</table>

Complete 3-4 credits of program advisor-approved electives. 3-4 credits

1 Students must earn a C or better in each program required course.

Minor, Ethnobotany
Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBOT F100</td>
<td>Introduction to Ethnobotany</td>
<td>3</td>
</tr>
<tr>
<td>EBOT F200</td>
<td>Seminar in Ethnobotany</td>
<td>1</td>
</tr>
<tr>
<td>EBOT F210</td>
<td>Ethical Wildcrafting</td>
<td>1</td>
</tr>
<tr>
<td>EBOT F220</td>
<td>Ethnobotanical Techniques</td>
<td>2</td>
</tr>
<tr>
<td>EBOT F230</td>
<td>Ethnobotanical Chemistry</td>
<td>3-4</td>
</tr>
<tr>
<td>or EBOT F250</td>
<td>Applied Ethnobotany Fall</td>
<td></td>
</tr>
<tr>
<td>and EBOT F251</td>
<td>Applied Ethnobotany Spring</td>
<td></td>
</tr>
</tbody>
</table>

Complete 4-5 credits of advisor-approved elective course(s) at 200-level or higher, selected from related subject areas, including (but not limited to): ANL, ANS, ANTH, BIOL and RD. 4-5 credits

Fire Science
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/emergency/

A.A.S. Degree
Minimum Requirements for Degree: 60 credits

The fire science program, which presently emphasizes only municipal fire control, provides classroom education, hands-on training and practical vocational experience through local fire and rescue organizations.

Instructors provide a high level of technical expertise on a variety of emergency and fire science services. The primary goal of this program is to make our students the most attractive candidates for job openings and promotions within fire and other emergency services fields.

Degree
- A.A.S., Fire Science (p. 123)
Minor

• Minor, Fire Science (p. 123)

A.A.S., Fire Science

Minimum Requirements for Degree: 60 credits
Students must earn a C- or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE F101</td>
<td>Principles of Emergency Services</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F105</td>
<td>Fire Prevention</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F121</td>
<td>Fire Behavior and Combustion</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F131</td>
<td>Firefighter I, Series I</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F133</td>
<td>Firefighter I, Series II</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F135</td>
<td>Firefighter I, Series III</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F137</td>
<td>Firefighter I, Series IV</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F206</td>
<td>Building Construction for Fire Protection</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F214</td>
<td>Fire Protection Systems</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F220</td>
<td>Emergency Services Safety, Health and Survival</td>
<td>3</td>
</tr>
</tbody>
</table>

Program Electives
Complete 15 credits from the following:

- EMS F170  EMT: Emergency Medical Technician I  3
- FIRE F107  Strategy and Tactics  3
- FIRE F117  Rescue Practices  3
- FIRE F151  Wildland Firefighter I  3
- FIRE F202  Fire Protection Hydraulics and Water Supply  3
- FIRE F210  Fire Administration I  3
- FIRE F232  Firefighter II  3

1 Students completing the A.A.S. in fire science will automatically complete a concentration in municipal fire control.

Note: Program electives must be approved by the student’s advisor.

Certificate; A.A.S. Degree

Minimum Requirements for Certificate: 30-42 credits; for Degree: 60-61 credits

The occupational endorsement, certificates, degrees and occupational training programs in allied health provide students with the knowledge and technical skills for employment in health care. Course work in phlebotomy is available, as are occupational endorsements in medical billing, medical coding and medical office reception. Certificates include medical assistant, dental assistant, health care reimbursement and medical/dental reception. A.A.S. degrees include dental assistant and medical assistant. A.A.S. degrees in nursing and radiologic technology are offered in Fairbanks at the Community and Technical College through the University of Alaska Anchorage.

Special admission, licensing or certification requirements may apply to students in this program. Applicants should familiarize themselves with these and speak with a faculty advisor if they have any questions or concerns.

DENTAL ASSISTANT

The dental assistant certificate and A.A.S. degree programs prepare students to become skilled members of the dental health care team. The duties of the dental assistant are among the most comprehensive and varied in the dental office. Upon completion of the course work, students graduate with either an A.A.S. or certificate in dental assisting and are eligible to take the National Entry Level Dental Assistant (NELDA) Dental Assisting National Board (DANB) examination. Prerequisites are graduation from high school or equivalent (GED) and completion of a dental assisting application form.

HEALTH CARE REIMBURSEMENT

The health care reimbursement certificate program prepares students for employment as medical billers and coders in medical offices, clinics, hospitals and other medical facilities. Students in the program learn analysis of medical records and the assigning of codes for indexing diagnoses and procedures to provide information for reimbursement purposes. The successful completion of this certificate prepares the student for the national certification exam through the American Academy of Professional Coders. The occupational endorsements in medical billing and medical coding are part of the Health Care Reimbursement Certificate.

MEDICAL ASSISTANT, MEDICAL/DENTAL RECEPTION

The medical assistant certificate and A.A.S. degree programs prepare students for employment in ambulatory care settings. Students receive education in the theory and skills for office work and clinical care. Prerequisites for the program include a high school diploma or GED and completion of the medical assistant application. The UAF Community and Technical College medical assistant certificate is accredited by the Commission on Accreditation of Allied Health Education Programs upon recommendation of the Medical Assisting Education Review Board (MAERB), CAAHEP, 25400 U.S. Highway 19 North, Suite 158, Clearwater, FL 33763, 727-210-2530. The medical assistant certificate incorporates both the medical office reception occupational endorsement and the medical/dental reception certificate.
NURSING QUALIFICATIONS, PRE-

The Allied Health certificate in pre-nursing qualifications is designed to guide students preparing to apply to the University of Alaska Anchorage Bachelors of Science in nursing. The certificate includes a clinical course in addition to a number of the prerequisite and corequisite courses for the B.S. in nursing. Admission to this certificate program requires a high school diploma or GED and test scores sufficient for placement into WRTG F111X and DEVM F105.

Admission to the UAA nursing program is competitive. While this certificate prepares the student to be highly qualified, it does not guarantee admission to the UAA nursing program. Before applying to the UAA B.S. program in nursing, students must complete a pre-admission nursing exam and are strongly encouraged to work in a clinical practice. Students should work closely with an advisor while completing this certificate and preparing an application for admission to the nursing program.

Students who have not completed high school chemistry will need to complete either CHEM F103X or CHEM F105X or have instructor permission to register for BIOL F111X or BIOL F112X.

REGISTERED NURSE

The B.S. degree in nursing is offered by the University of Alaska Anchorage at the Community and Technical College in cooperation with the Allied Health department. Graduates of the nursing program are prepared to provide effective nursing services to individuals receiving care in inpatient settings and in structured outpatient settings. The academic program provides a closely related mix of theory and clinical practice; students gain experience in hospitals, nursing homes, clinics and community agencies. Graduates of this B.S. degree are eligible to take the NCLEX examination that grants professional licensure to practice nursing as a registered nurse. Additional information is available at http://nursing.uaa.alaska.edu.

RADIOLOGIC TECHNOLOGY

The A.A.S. degree in radiologic technology is offered by the University of Alaska Anchorage in cooperation with the Community and Technical College and Fairbanks Memorial Hospital. Course work for the degree is delivered through a combination of the traditional classroom setting, distance delivery and clinical experience. Upon completion of the program, students may apply to the American Registry of Radiologic Technologists (ARRT) for national certification. Additional information is available at http://www.uaa.alaska.edu/alliedhealth/academics/radiologictechnology/.

Information on any of the Allied Health programs is available from the Allied Health Division at Community and Technical College, PO Box 758040, Fairbanks, AK 99775; by calling 907-455-2822; by email at fyhealth@uaf.edu; or at http://www.ctc.uaf.edu/health/.

Degrees

• A.A.S., Dental Assistant (p. 124)
• A.A.S., Medical Assistant (p. 124)

Certificates

• Dental Assistant (p. 125)
• Health Care Reimbursement (p. 125)
• Medical Assistant (p. 125)
• Medical/Dental Reception (p. 126)

A.A.S., Dental Assistant

Minimum Requirements for Degree: 61 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
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<td><strong>Program Requirements</strong></td>
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<tr>
<td>DA F132</td>
<td>Administrative Procedures for the Dental Assistant</td>
<td>2</td>
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<tr>
<td>DA F150</td>
<td>Dental Radiography</td>
<td>4</td>
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<tr>
<td>DA F151</td>
<td>Dental Infection Control</td>
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<tr>
<td>DA F152</td>
<td>Dental Materials and Applications</td>
<td>4</td>
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<td>DA F153</td>
<td>Anatomy for Dental Assistants</td>
<td>3</td>
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<td>DA F251</td>
<td>Clinical Chairside I for Dental Assistants</td>
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<td>DA F252</td>
<td>Clinical Chairside II for Dental Assistants</td>
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<td>DA F253</td>
<td>Clinical Chairside III for Dental Assistants</td>
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<tr>
<td>DA F254</td>
<td>Dental Assistant Practicum</td>
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<td>HLTH F110</td>
<td>Professional Skills for the Workplace</td>
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</tr>
<tr>
<td>HLTH F114</td>
<td>Fundamentals of Anatomy and Physiology</td>
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<tr>
<td>HLTH F122</td>
<td>First Aid and CPR for the Healthcare Provider (or First Aid/CPR card)</td>
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<tr>
<td>HLTH F203</td>
<td>Science of Nutrition</td>
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<tr>
<td>MA F247</td>
<td>Introduction to Pharmacology</td>
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A.A.S., Medical Assistant

Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

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<tr>
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<td>HLTH F110</td>
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<td>Fundamentals of Anatomy and Physiology (preferred)</td>
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<tr>
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<td>HLTH F118</td>
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<tr>
<td>or CIOS F150</td>
<td>Computer Business Applications</td>
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<tr>
<td>MA F142</td>
<td>Clinical Procedures I</td>
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Certificate, Dental Assistant

Minimum Requirements for Certificate: 33 credits
Students must earn a C- or better in each course.

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<td>DA F151</td>
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<td>DA F152</td>
<td>Dental Materials and Applications</td>
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</tr>
<tr>
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1 As part of the certificate requirements, the communication, computation and human relations content is embedded in the major required courses for this program.

Certificate, Medical Assistant

Minimum Requirements for Certificate: 36 credits
Students must earn a C- or better in each course.

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<tr>
<td>MA F114</td>
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<td>MA F247</td>
<td>Introduction to Pharmacology</td>
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<td>MA F268</td>
<td>Medical Assisting Practicum</td>
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<tr>
<td>or MA F261</td>
<td>Medical/Dental Office Reception Practicum and Medical Assisting Practicum Completion</td>
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1 Fulfills the written communications requirement.

Certificate, Health Care Reimbursement

Minimum Requirements for Certificate: 30 credits
Students must earn a C- or better in each course.

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<td>Certificate Requirements</td>
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<td></td>
<td>Complete the certificate requirements. (p. 96)</td>
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</table>

1 Complete course or submit current First Aid and CPR for the healthcare provider card.
Certificate, Medical/Dental Reception

Minimum Requirements for Certificate: 30 credits

Students must earn a C- or better in each course.

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<td>ABUS F271</td>
<td>Business Communications</td>
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<td>Writing Across Contexts</td>
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<td><strong>Computation</strong></td>
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<td>Mathematics in Health Care (or MATH at the F100 level or above)</td>
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<td>HLTH F106</td>
<td>Human Behavior in Health Care</td>
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<td>HLTH F234</td>
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<td>HLTH F236</td>
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1. Complete course or submit First Aid and CPR for the healthcare providers cards.

Certificate, Pre-Nursing Qualifications

Minimum Requirements for Certificate: 37-42 credits

Students must earn a C- or better in each course.

<table>
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<td>WRTG F111X</td>
<td>Writing Across Contexts</td>
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<td></td>
<td><strong>Computation</strong></td>
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<td>DEVM F105</td>
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<tr>
<td>MATH at the 100 level or higher</td>
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<tr>
<td></td>
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<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
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<tr>
<td>WRTG F213X</td>
<td>Writing and the Sciences (preferred)</td>
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Certificate, Pre-Nursing Qualifications

Minimum Requirements for Certificate: 37-42 credits

Students must earn a C- or better in each course.

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<td></td>
<td><strong>Computation</strong></td>
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<td>PSY F101X</td>
<td>Introduction to Psychology</td>
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<td><strong>Program Requirements</strong></td>
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<tr>
<td>WRTG F213X</td>
<td>Writing and the Sciences (preferred)</td>
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</table>

High Latitude Range Management

College of Rural and Community Development
907-474-7143
http://www.nwc.uaf.edu

Certificate

Minimum Requirements for Certificate: 31 credits

An HLRM program certificate represents the completion of 31 credits delivered via hands-on applied field, laboratory and classroom sessions, with supplementary virtual instruction. The curriculum consists of the inventory and monitoring of Northern animal and plant populations, domesticated ungulate husbandry and health, research and report writing, and the opportunity to formulate a reindeer business plan specific for community development needs. Indigenous knowledge and the application of the scientific method will be used to stimulate learning and to better prepare students for entry-level natural resource jobs or to become a reindeer entrepreneur.

Admission is open to all, especially those employed by or interested in employment with tribal, state or federal agencies or other local entities in rural Alaska that provide natural resource management services. Students should have a high school diploma or GED and an interest in science-related fields. It is strongly recommended that students seeking admission to this program have completed two high school lab-based science courses, preferably in biology, chemistry or physics.

The HLRM certificate may serve as a bridge to a variety of natural science associate and baccalaureate programs.
Certificate, High Latitude Range Management

Minimum Requirements for Certificate: 31 credits
Students must earn a C- or better in each course.

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<td>Computation</td>
<td>MATH F113X Numbers and Society</td>
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<td>Human Relations</td>
<td>ANTH F100X/SOC F101X Individual, Society and Culture</td>
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<td>BIOL F104X Natural History of Alaska</td>
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<td>HLRM F120 History of Domesticated Alaskan Ungulates</td>
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<td>HLRM F130 Research Field Logistics</td>
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<td>HLRM F150 Alaskan Ungulate Husbandry</td>
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<td>HLRM F160 Meat Production</td>
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<td>HLRM F170 Health Issues in Domesticated Ungulates</td>
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<td>HLRM F201 Field Techniques for Range Management</td>
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Human Services

College of Rural and Community Development
907-474-7143
http://www.ctc.uaf.edu/programs/hums/

A.A.S. Degree

Minimum Requirements for Degree: 63 credits
Students must earn a C grade or better in each course.

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<td>HUMS F102 Standards of Practice</td>
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<td>HUMS F120 Cultural Diversity in Human Services</td>
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<td>HUMS F125X Introduction to Addictive Processes</td>
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<td>HUMS F202 Standards of Practice II</td>
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Interdisciplinary Concentration

Concentrations

ADDITIONS COUNSELING

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<td>Personal Awareness and Growth</td>
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<td>HUMS F205</td>
<td>Basic Principles of Group Counseling</td>
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<tr>
<td>or HUMS F210</td>
<td>Crisis and Grief Counseling</td>
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<tr>
<td>HUMS F250</td>
<td>Current Issues in Human Services (or any 1-credit course approved by the human services program)</td>
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<tr>
<td>HUMS F260</td>
<td>History of Alcohol in Alaska</td>
<td>1</td>
</tr>
<tr>
<td>HUMS F261</td>
<td>Substance Abuse Assessment: ASAM PPC II</td>
<td>1</td>
</tr>
<tr>
<td>HUMS F263</td>
<td>Fetal Alcohol Spectrum Disorder</td>
<td>1</td>
</tr>
<tr>
<td>HUMS F266</td>
<td>Co-occurring Disorders</td>
<td>2</td>
</tr>
<tr>
<td>HUMS F305</td>
<td>Substance Abuse Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Complete one of the following family courses:</td>
<td>2-3</td>
<td></td>
</tr>
<tr>
<td>ECE F342</td>
<td>Family Relationships</td>
<td></td>
</tr>
<tr>
<td>HUMS F140</td>
<td>Family Dynamics</td>
<td></td>
</tr>
<tr>
<td>PSY F240</td>
<td>Psychology of Development</td>
<td></td>
</tr>
<tr>
<td>RHS F120</td>
<td>Family Systems I</td>
<td></td>
</tr>
</tbody>
</table>

BEHAVIORAL HEALTH

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS F205</td>
<td>Basic Principles of Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F210</td>
<td>Crisis and Grief Counseling</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F280</td>
<td>Prevention and Community Development</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F290</td>
<td>Case Management</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F305</td>
<td>Substance Abuse Counseling</td>
<td>3</td>
</tr>
<tr>
<td>SOC F242</td>
<td>The Family: A Cross-cultural Perspective</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective credits (approved by human services program coordinator) | 3

If the student is a social work or justice major, then select one of the following in place of an elective:

Social Work Majors:
- SWK F103X Introduction to Social Work

Justice Majors:
- JUST F110X Introduction to Justice

INTERDISCIPLINARY CONCENTRATION

a. The interdisciplinary concentration option is made available to students based on their individual needs and goals for specific vocational preparation. The interdisciplinary concentration will include 12 credits at the F200 level or above from the disciplines of social work, psychology, sociology, justice or human services. Three credits from these disciplines can be at the F100 level.

b. The interdisciplinary concentration will be reviewed and approved by the human services program coordinator, another human services faculty member and a faculty member representing at least one other discipline. Criteria for the approval of the interdisciplinary concentration is based on the candidate’s identified vocational and curricular needs.

Examples:

- HUMS or other acceptable courses that meet a student’s specific need: Workforce Specialty, Family Specialty, Restorative Justice, etc.
- Courses or a certificate from within the UA system (UAA, RHS, PWSCC, etc.) that are aligned with the human services degree program.

Below is a sample of courses that could be used to fulfill an interdisciplinary concentration in restorative justice for the human services degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS F210</td>
<td>Crisis and Grief Counseling</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F290</td>
<td>Case Management</td>
<td>3</td>
</tr>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
<td>3</td>
</tr>
<tr>
<td>JUST F251X</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems and Solutions</td>
<td>3</td>
</tr>
</tbody>
</table>

For Students with the Rural Human Services Certificate

Up to 27 credits accepted as a block of courses

Minimum Requirements for Degree: 63 credits

Students must earn a C grade or better in each course.

Certification, Alaska Chemical Dependency Counselor

ALASKA CHEMICAL DEPENDENCY COUNSELOR CERTIFICATION

The Alaska Commission for Behavioral Health Certification has approved the following courses for up to 45 training hours each toward certification or recertification of Chemical Dependency Counselors in the state of Alaska.
Note: Chemical Dependency Counselors currently certified by the Alaska Commission for Behavioral Health Certification are eligible for transfer credit toward the human services degree. Contact the human services program coordinator at 907-455-2842 for more information.

Minor, Human Services

Minimum Requirements for Minor: 18 credits

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS F125X</td>
<td>Introduction to Addictive Processes</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F205</td>
<td>Basic Principles of Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F210</td>
<td>Crisis and Grief Counseling</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F215</td>
<td>Individual Interviewing</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F260</td>
<td>History of Alcohol in Alaska</td>
<td>1</td>
</tr>
<tr>
<td>HUMS F301</td>
<td>Ethics in Human Service</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F305</td>
<td>Substance Abuse Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>

A.A.S., Information Technology Specialist

Concentrations: Computing Technology, Network and Cybersecurity, and Network and System Administration

Minimum Requirements for A.A.S. Degree: 60 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITS F204</td>
<td>Introduction to Network Support and Administration</td>
<td>3</td>
</tr>
<tr>
<td>CITS F205</td>
<td>Introduction to Microcomputer Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS F103</td>
<td>Introduction to Computer Programming</td>
<td></td>
</tr>
<tr>
<td>CS F201</td>
<td>Computer Science I</td>
<td></td>
</tr>
<tr>
<td>CITS F212</td>
<td>Server Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CITS F261</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CITS F281</td>
<td>Professional Practices in IT</td>
<td>3</td>
</tr>
<tr>
<td>CITS F284</td>
<td>Independent Project</td>
<td>3</td>
</tr>
<tr>
<td>or CITS F285</td>
<td>Cooperative Work Experience</td>
<td></td>
</tr>
<tr>
<td>CIOS, CITS or CS electives</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Concentrations

Complete one of the following concentrations: 21-22

Computing Technology

Network and Cybersecurity

Network and System Administration

Pass a certification review requiring students to demonstrate proficiency in the following skill areas: network support and troubleshooting; system administration; cybersecurity; independent thinking; human relations and support; and professional practices. ^2

As part of the A.A.S. degree requirements, complete DEVM F105 or any course at the F100 level or above in mathematical sciences (computer science, math or statistics) for the computation requirement, and ABUS F154, ANTH F100X, SOC F101X for the human relations requirement.
Prior to graduation, all students are required to pass a certification review that includes a hands-on scenario task and the development and presentation of a portfolio of work.

**Concentrations**

**COMPUTING TECHNOLOGY**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITS F201</td>
<td>Microcomputer Operating Systems Support</td>
<td></td>
</tr>
<tr>
<td>CITS F203</td>
<td>Information Technology Support Fundamentals</td>
<td></td>
</tr>
<tr>
<td>CITS F219</td>
<td>Microcomputer Operating Systems: Topics</td>
<td></td>
</tr>
<tr>
<td>CITS F220</td>
<td>Implementing Internet Tools and Technologies</td>
<td></td>
</tr>
<tr>
<td>CITS F221</td>
<td>Graphics and Multimedia for the Web</td>
<td></td>
</tr>
<tr>
<td>CITS F222</td>
<td>Website Design</td>
<td></td>
</tr>
<tr>
<td>CITS F240</td>
<td>System and Network Services Administration</td>
<td></td>
</tr>
<tr>
<td>CITS F241</td>
<td>Networking and LAN Infrastructure Basics</td>
<td></td>
</tr>
<tr>
<td>CITS F242</td>
<td>Routing and Switching Essentials</td>
<td></td>
</tr>
<tr>
<td>CITS F243</td>
<td>Intermediate Networking and LAN Infrastructure</td>
<td></td>
</tr>
<tr>
<td>CITS F244</td>
<td>Advanced Network Infrastructure Services</td>
<td></td>
</tr>
<tr>
<td>CITS F262</td>
<td>Cybersecurity Defense and Countermeasures</td>
<td></td>
</tr>
<tr>
<td>CITS F263</td>
<td>Network Security Penetration Testing</td>
<td></td>
</tr>
<tr>
<td>CITS F265</td>
<td>Directory Services Administration</td>
<td></td>
</tr>
<tr>
<td>CITS F282</td>
<td>IT Troubleshooting Skills</td>
<td></td>
</tr>
<tr>
<td>CITS F289</td>
<td>Information Technology: Topics</td>
<td></td>
</tr>
</tbody>
</table>

**NETWORK AND CYBERSECURITY**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITS F241</td>
<td>Networking and LAN Infrastructure Basics</td>
<td>4</td>
</tr>
<tr>
<td>CITS F242</td>
<td>Routing and Switching Essentials</td>
<td>4</td>
</tr>
<tr>
<td>CITS F243</td>
<td>Intermediate Networking and LAN Infrastructure</td>
<td>4</td>
</tr>
<tr>
<td>CITS F244</td>
<td>Advanced Network Infrastructure Services</td>
<td>4</td>
</tr>
<tr>
<td>CITS F262</td>
<td>Cybersecurity Defense and Countermeasures</td>
<td>3</td>
</tr>
<tr>
<td>CITS F263</td>
<td>Network Security Penetration Testing</td>
<td>3</td>
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</table>

**NETWORK AND SYSTEM ADMINISTRATION**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITS F240</td>
<td>System and Network Services Administration</td>
<td>3</td>
</tr>
<tr>
<td>CITS F219</td>
<td>Microcomputer Operating Systems: Topics</td>
<td>2</td>
</tr>
<tr>
<td>CITS F220</td>
<td>Implementing Internet Tools and Technologies</td>
<td></td>
</tr>
</tbody>
</table>
Instrumentation Technology

Certificate

Minimum Requirements for Certificate: 32 credits

The instrumentation technology program will develop entry-level skills in industrial instrumentation. Courses combine the technical know-how, the use of state-of-the-art equipment and hands-on experience necessary for work in a variety of industrial instrumentation fields.

Students are taught the necessary objectives and skills sets required to take the entry-level Instrumentation, Systems and Automation Society certificate examination. This is a nationally recognized certification by industry partners; individuals holding this certification are sought after by industry partners to fill instrumentation technician positions worldwide.

As the process industries expand and automate, the need for qualified technicians increases. This need is currently being addressed by the Industrial Instrumentation & Controls Technology Alliance. CTC and the process technology program are active members of this national alliance.

Certificate

• Instrumentation Technology (p. 131)

Certificate, Instrumentation Technology

Minimum Requirements for Certificate: 32 credits

Students must earn a C grade or better in each course.
Eskimo or Central Yup’ik Eskimo. The certificate and degree are recognized by some Alaska school districts and serve as steps toward a four-year degree. Candidates for the Central Yup’ik option must score advanced oral proficiency on an oral proficiency exam before being admitted into the program.

Degree
- A.A.S., Native Language Education (p. 132)

Certificate
- Native Language Education (p. 132)

A.A.S., Native Language Education

Concentrations: Athabascan, Inupiaq Eskimo, Central Yup’ik Eskimo

Minimum Requirements for Degree: 60 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 94)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>A.A.S. Degree Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the A.A.S. degree requirements. (p. 100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following concentrations:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Athabascan</td>
<td>27-30</td>
</tr>
<tr>
<td></td>
<td>Inupiaq</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Central Yup’ik</td>
<td></td>
</tr>
</tbody>
</table>

Concentrations

ATHABASCAN
Candidates must demonstrate proficiency or complete a two-semester sequence in the language of the degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Program Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>ANL F108</td>
<td>Beginning Athabascan Literacy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete 6 credits from the following:</td>
<td>6</td>
</tr>
<tr>
<td>ANL F199</td>
<td>Practicum in Native Language Education</td>
<td></td>
</tr>
<tr>
<td>ANL F208</td>
<td>Advanced Athabascan Literacy</td>
<td>3</td>
</tr>
<tr>
<td>ANL F251X</td>
<td>Introduction to Athabascan Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>ANL F256</td>
<td>Introduction to Alaska Native Languages: History, Status and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
<td>3</td>
</tr>
</tbody>
</table>

INUPIAQ ESKIMO
Candidates must demonstrate proficiency or complete a two-semester sequence in the language of the degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Program Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>YUP F109</td>
<td>Central Yup’ik Orthography</td>
<td>3</td>
</tr>
<tr>
<td>YUP F208</td>
<td>Yup’ik Composition</td>
<td>3</td>
</tr>
<tr>
<td>YUP F250</td>
<td>Yup’ik Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>YUP F251</td>
<td>Teaching Beginning Yup’ik Reading and Writing</td>
<td>3</td>
</tr>
<tr>
<td>ANL F199</td>
<td>Practicum in Native Language Education</td>
<td>3</td>
</tr>
<tr>
<td>ANL F256</td>
<td>Introduction to Alaska Native Languages: History, Status and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANL F288</td>
<td>Curriculum and Materials Development for Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ED F299</td>
<td>Practicum in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

See Alaska Native Languages (p. 160).

Certificate, Native Language Education

Concentrations: Athabascan, Inupiaq Eskimo, Central Yup’ik Eskimo

Minimum Requirements for Certificate: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
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</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 94)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Certificate Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the certificate requirements. (p. 96) ¹</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following concentrations:</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Athabascan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inupiaq Eskimo</td>
<td></td>
</tr>
</tbody>
</table>

¹ Including Education 299 (3 credits)
Central Yup’ik Eskimo

1 As part of the certificate requirements, the communication, computation, and human relations content is embedded in some of the major required courses for this program.

Concentrations

ATHABASCAN
Candidates must demonstrate proficiency or complete a two-semester sequence in the language of the degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F108</td>
<td>Beginning Athabascan Literacy</td>
<td>3</td>
</tr>
<tr>
<td>ANL F208</td>
<td>Advanced Athabascan Literacy</td>
<td>3</td>
</tr>
<tr>
<td>ANL F251X</td>
<td>Introduction to Athabascan Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>ANL F256</td>
<td>Introduction to Alaska Native Languages: History, Status and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANL F288</td>
<td>Curriculum and Materials Development for Alaska Native Languages</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 6 credits from each of the following practicums: 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F199</td>
<td>Practicum in Native Language Education</td>
<td></td>
</tr>
<tr>
<td>ED F299</td>
<td>Practicum in Education</td>
<td></td>
</tr>
</tbody>
</table>

INUPIAQ ESKIMO
Candidates must demonstrate proficiency or complete a two-semester sequence in the language of the degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F256</td>
<td>Introduction to Alaska Native Languages: History, Status and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANL F288</td>
<td>Curriculum and Materials Development for Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>INU F118</td>
<td>Inupiaq Orthography</td>
<td>3</td>
</tr>
<tr>
<td>INU F218</td>
<td>Inupiaq Composition</td>
<td>3</td>
</tr>
<tr>
<td>Eskimo linguistics elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 6 credits from each of the following practicums: 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F199</td>
<td>Practicum in Native Language Education</td>
<td></td>
</tr>
<tr>
<td>ED F299</td>
<td>Practicum in Education</td>
<td></td>
</tr>
</tbody>
</table>

CENTRAL YUP’IK ESKIMO
Demonstrate advanced oral/aural proficiency in Yup’ik.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F199</td>
<td>Practicum in Native Language Education</td>
<td></td>
</tr>
<tr>
<td>ANL F256</td>
<td>Introduction to Alaska Native Languages: History, Status and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
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<td>ANL F288</td>
<td>Curriculum and Materials Development for Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ED F299</td>
<td>Practicum in Education</td>
<td></td>
</tr>
</tbody>
</table>

Paralegal Studies
Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/paralegal/

A.A.S. Degree
Minimum Requirements for Degree: 61 credits

The paralegal studies program trains students for employment as paralegals to help deliver legal services under the supervision of a practicing lawyer, and provides continuing education and upgrading of skills for paralegals already employed. The program also offers practical law-related topics for UAF students whose main focus is in other areas of study, such as political science and justice.

Paralegals and legal assistants are not authorized to provide direct legal services to the public. However, they are qualified to perform rudimentary legal research and produce drafts of letters, office memoranda, pleadings, contracts, wills and similar documents. Paralegals conduct client and witness interviews, engage in basic fact-finding and investigation, and assist in trial preparation and discovery. At all times they remain cognizant of the ethical responsibilities owed by the supervising lawyer to clients, other lawyers and the court system.

The paralegal studies program does not train lawyers or legal administrators. The associate degree is approved by the American Bar Association. The minor is not designed to prepare students to work as paralegals and is not approved by the American Bar Association.

Degree
- A.A.S., Paralegal Studies (p. 133)

Minor
- Minor, Paralegal Studies (p. 134)

A.A.S., Paralegal Studies
1. Complete WRTG F111X with a grade of C or better prior to admission to the program.
Minor, Paralegal Studies

Minimum Requirements for Degree: 61 credits
Students must earn a C- grade or better in each course.

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<thead>
<tr>
<th>Code</th>
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<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
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<td>Complete the general university requirements. (p. 94)</td>
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<tr>
<td>PLS F102</td>
<td>Introduction to Paralegal Studies</td>
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<td>PLS F105</td>
<td>Introduction to Paralegal Ethics</td>
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<td>PLS F201</td>
<td>Practical Paralegal Skills</td>
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<td>PLS F210</td>
<td>Civil Procedure</td>
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<td>PLS F260</td>
<td>Computers in the Law Office</td>
<td>3</td>
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<td>PLS F270</td>
<td>Constitutional Law for Paralegals</td>
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<tr>
<td>PLS F280</td>
<td>Legal Research and Writing for Paralegals</td>
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<td>PLS F285</td>
<td>Advanced Legal Writing</td>
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<td>PLS F299</td>
<td>Paralegal Studies Internship</td>
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<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
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<td>or JUST F110X Introduction to Justice</td>
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<td>Complete one from the following:</td>
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<td>JUST F300X Ethics and Justice</td>
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<td>PS F300X Ethics and Society</td>
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<td>PS F303 Politics and the Judicial Process</td>
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<td>Complete five from the following:</td>
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<tr>
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<td>PLS F203 Torts</td>
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<td>PLS F213 Criminal Law for Paralegals</td>
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<td>PLS F215 Contracts/Real Property</td>
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<td>PLS F240 Family Law</td>
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<td>PLS F242 Employment and Administrative Law</td>
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<td>PLS F250 Probate Law</td>
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<td></td>
<td>PLS F275 Business Organizations</td>
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**Note:** Students interested in the paralegal studies degree should consult the program coordinator before enrolling in paralegal courses. Transfer credits for paralegal courses completed at other institutions are subject to approval by the program coordinator. No more than 15 credit hours of paralegal courses completed at other institutions will be applied toward completion of the A.A.S. degree in paralegal studies at UAF.

A.A.S. Degree

Minimum Requirements for Degree: 69-73 credits

The Community and Technical College Paramedicine program is accredited by the Commission on Accreditation of Allied Health Education Programs (http://www.caahep.org/) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP).

Commission on Accreditation of Allied Health Education Programs
25400 US Highway 19 N., Suite 158
Clearwater, FL 33763
727-210-2350
http://www.caahep.org/

To contact CoAEMSP:
8301 Lakeview Parkway
Suite 111-312
Rowlett, TX 75088
214-703-8445
FAX 214-703-8992
http://www.coaemsp.org/

The Paramedicine program offers excellent instruction, clinical experience, state-of-the-art simulation labs and practical vocational experience for the student seeking to become a paramedic. Upon completion of the Paramedicine program, students will be able to take the national paramedic exam. After receiving national certification, students can apply for a paramedic license through the Alaska State Medical Board.

An application must be completed for admission into the Paramedicine program. Applications are reviewed by the program’s medical director and advisory board.

Applicants must have a current EMT basic certification (or have completed EMS F170), and have completed HLTH F114.

Degree

- A.A.S., Paramedicine (p. 134)

A.A.S., Paramedicine

1. Applicants must have a current EMT basic certification (or have completed EMS F170) and have completed HLTH F114.

Minimum Requirements for Degree: 69-73 credits
Students must earn a C- grade or better in each course.

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<tr>
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<td><strong>Program Requirements</strong></td>
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<tr>
<td>EMS F170</td>
<td>EMT: Emergency Medical Technician I</td>
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<td>EMS F181</td>
<td>Clinical Rotation I</td>
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<td>EMS F183</td>
<td>Clinical Rotation II</td>
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<td>EMS F280</td>
<td>Paramedicine I</td>
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Paramedicine

Community and Technical College
907-455-2800
http://www.ctc.uaf.edu/programs/emergency/
<table>
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<tr>
<th>Code</th>
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<tr>
<td>EMS F282</td>
<td>Paramedicine II</td>
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<tr>
<td>EMS F283</td>
<td>Paramedic Internship</td>
<td>12</td>
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<tr>
<td>HLTH F114</td>
<td>Fundamentals of Anatomy and Physiology</td>
<td>4-8</td>
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<tr>
<td>or BIOL F111X and BIOL F112X</td>
<td>Human Anatomy and Physiology I and Human Anatomy and Physiology II</td>
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### Piloting, Professional

Community and Technical College  
907-455-2800  
http://www.ctc.uaf.edu/programs/pilot/

**A.A.S. Degree**

Minimum Requirements for Degree: 60 credits

The professional piloting program offers a series of aviation piloting courses ranging from ground school classes for private through commercial flying, Arctic survival, weather and aircraft maintenance. Rated pilots or military aviators may be eligible for credit based upon experience and FAA certificates, which may be applied towards an Associate of Applied Science degree in professional piloting or a minor in aviation technology. See department personnel for details. UAF does not offer flight instruction.

A minor in aviation technology will give students an opportunity to become familiar with the field of aviation, with particular emphasis on the use of aviation as a tool and economic process within the Alaska environment.

**Degree**

- A.A.S., Piloting, Professional (p. 135)

**Minor**

- Minor, Aviation Technology (p. 135)

### A.A.S., Piloting, Professional

**Minimum Requirements for Degree: 60 credits**

Students must earn a C- grade or better in each course.

<table>
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<tr>
<th>Code</th>
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<th>Credits</th>
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<tr>
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<td>Complete the general university requirements. (p. 94)</td>
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<tr>
<td>A.A.S. Degree Requirements</td>
<td>Complete the A.A.S. degree requirements. (p. 100)</td>
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</tr>
<tr>
<td>Program Requirements</td>
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<tr>
<td>AVTY F100</td>
<td>Private Pilot Ground School</td>
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</tr>
<tr>
<td>AVTY F102</td>
<td>Commercial Ground Instruction</td>
<td>3</td>
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<td>AVTY F155</td>
<td>Preventive Maintenance (or AFPM advisor-approved course(s))</td>
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<tr>
<td>AVTY F200</td>
<td>Instrument Ground School</td>
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<tr>
<td>AVTY F231</td>
<td>Arctic Survival</td>
<td>3</td>
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<tr>
<td>AVTY F235</td>
<td>Elements of Weather</td>
<td>3</td>
</tr>
<tr>
<td>Program-approved major specialty electives</td>
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<tr>
<td>General electives</td>
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1. See webpage or contact department for suggested list of courses, many of which the applicant may obtain credit for based upon experience or ratings.

### Minor, Aviation Technology

**Minimum Requirements for Minor: 16 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>Foundation Course</td>
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<tr>
<td>AVTY F100</td>
<td>Private Pilot Ground School</td>
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<tr>
<td>Program Requirements</td>
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<tr>
<td>AVTY F155</td>
<td>Preventive Maintenance</td>
<td>3</td>
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<tr>
<td>AVTY F231</td>
<td>Arctic Survival</td>
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<tr>
<td>AVTY F235</td>
<td>Elements of Weather</td>
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<tr>
<td>Elective</td>
<td>AVTY elective or AFPM advisor-approved elective</td>
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### Process Technology

Community and Technical College  
907-455-2800  
http://www.ctc.uaf.edu/programs/protech/

**A.A.S. Degree**

Minimum Requirements for Degree: 63 credits

The process technology program prepares students for employment as operations technicians in the process industry, which includes oil and gas production, mining and milling, transportation and refining, chemical manufacturing, power generation, utilities, wastewater treatment facilities maintenance, and food processing.

This A.A.S. degree program incorporates technical and academic courses covering topics such as pumps and turbines, instrumentation, safety and quality control. Summer internships give students valuable practical experience and exposure to the true nature of process technology careers.

**Degree**

- A.A.S., Process Technology (p. 135)

### A.A.S., Process Technology

**Minimum Requirements for Degree: 63 credits**

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
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<td>A.A.S. Degree Requirements</td>
<td>Complete the A.A.S. degree requirements. (p. 100)</td>
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<tr>
<td>Program Requirements</td>
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<tr>
<td>Demonstrate competence in computer technology skills (through the process technology program assessment) or select one from the following:</td>
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<tr>
<td>DRT F110</td>
<td>Computer Literacy for Technicians</td>
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<tr>
<td>CIOS F150</td>
<td>Computer Business Applications</td>
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<tr>
<td>A program advisor-approved computer applications course</td>
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**Program Requirements**
Rural Human Services

College of Rural and Community Development
907-474-7143
http://www.uaf.edu/rhs/

Certificate

Minimum Requirements for Certificate: 32 credits

The rural human services program is designed to develop strong and healthy rural Alaska Native individuals, families and communities. The RHS program provides entry-level training for students preparing for careers as natural helpers/healers in village-based public, private and volunteer human service organizations. The curriculum draws extensively from Indigenous knowledge and wisdom about health and well-being and reflects a strong multicultural orientation that validates, incorporates and builds on indigenous values and principles.

The certificate program is a concentrated course of study focused on rural behavioral health services. Both the Alaska Division of Behavioral Health and the Alaska Native Tribal Health Consortium have designated many of the credits earned through the RHS program as satisfying credentialing training requirements.

The certificate program provides additional credentials for service providers who work in related fields and would like additional training in rural behavioral health services. Providers who may want such training could include health aides, family service workers, correctional workers and teachers. The RHS program is offered as a closed cohort with monthly, week-long intensives for two academic years.

Admission is open to anyone employed by a regional Native health corporation or local entity providing village-based human services, or to individuals recognized by their communities as natural helpers/healers. A high school diploma or GED and/or previous training or work experience in the delivery of village-based human services are recommended but not required.

This degree program is delivered collaboratively within the UA system.

Safety, Health and Environmental Awareness Technology

Community and Technical College
907-479-2436
http://www.ctc.uaf.edu/osh/

Certificate

Minimum Requirements for Certificate: 37 credits

This program develops entry-level skills in industrial safety, health and environmental awareness. Courses combine the technical know-how, use of state-of-the-art equipment and hands-on experience necessary for students to obtain work in a variety of safety-related industrial fields.

Students are taught the necessary objectives and skills required to take an entry-level Occupational Health and Safety Technologist exam when coupled with other requirements as set forth by the Council on Certification of Health, Environmental and Safety Technologists.
As the process industries expand and automate, the need for qualified safety technicians increases. The Community and Technical College and the process technology program are members of the American Society of Safety Engineers.

Certificate

- Safety, Health and Environmental Awareness Technology (p. 137)

Certificate, Safety, Health and Environmental Awareness Technology

Minimum Requirements for Certificate: 37 credits
Students must earn a C grade or better in each course.

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<tr>
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<td>PRT F101</td>
<td>Introduction to Process Technology</td>
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<td>PRT F110</td>
<td>Introduction to Occupational Safety, Health and Environmental Awareness</td>
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<tr>
<td>OSH F108</td>
<td>Injury Prevention and Risk Management</td>
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<td>OSH F110</td>
<td>Program Assessments, Development and Implementation</td>
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<td>OSH F120</td>
<td>Safety Program Management and Recordkeeping</td>
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<td>OSH F180</td>
<td>Introduction to Industrial Hygiene</td>
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<td>OSH F201</td>
<td>Workplace Injury and Incident Evaluations</td>
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<td>OSH F250</td>
<td>Hazardous Material Operation</td>
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Tribal Management

College of Rural and Community Development
907-474-7143
http://tribal.uaf.edu/

Certificate, A.A.S. Degree

Minimum Requirements for Certificate: 30 credits; for A.A.S. Degree: 60 credits

The tribal management program teaches the job-related skills and knowledge needed for positions within tribal and local governments and other organizations in rural Alaska. In response to the broad variety of job-related skills needed by tribal councils, administrators and staff, the tribal management certificate and A.A.S. degree programs are designed to allow students to tailor their education for specific employment-related skills. Students perform specific tasks, learn basic management rationale and explore issues in tribal government. The tribal management program provides students with fundamental knowledge of tribal governance and finance as well as hands-on education and training in subject areas important to tribal governments. Students work closely with their academic advisor to choose courses in one or more areas of study that target their employment needs.

Students entering either the certificate or A.A.S. degree program will meet with a faculty advisor to discuss program content, requirements and planning.

Minor

Minimum Requirements for Minor: 15 credits
The minor in tribal management provides students with the skills to work within tribal and local governments and other organizations in rural Alaska. The curriculum gives students a foundation to apply the knowledge gained in their majors to rural and tribal management contexts.

Degree

- A.A.S., Tribal Management (p. 137)

Certificate

- Tribal Management (p. 139)

Minor

- Minor, Tribal Management (p. 140)

A.A.S., Tribal Management

Minimum Requirements for A.A.S. Degree: 60 credits

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<tr>
<td>TM F101</td>
<td>Introduction to Tribal Government in Alaska</td>
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<td>TM F105</td>
<td>Introduction to Managing Tribal Governments</td>
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<td>TM F199</td>
<td>Tribal Management Practicum I</td>
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<td>TM F201</td>
<td>Tribal Government in Alaska II</td>
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<td>TM F205</td>
<td>Managing Tribal Governments II</td>
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<td>TM F299</td>
<td>Tribal Management Practicum II</td>
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<td>Complete 27 credits from the following:</td>
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<td></td>
<td>Environmental and Natural Resource Management</td>
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<td>BIOL F104X</td>
<td>Natural History of Alaska</td>
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<td>ENVI F101</td>
<td>Introduction to Environmental Science</td>
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<td>FISH F101</td>
<td>Introduction to Fisheries</td>
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<td>FISH F261</td>
<td>Introduction to Fisheries Utilization</td>
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<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
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<td>NRM F204</td>
<td>Public Lands Law and Policy</td>
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<td>RD F245</td>
<td>Fisheries and Marine Wildlife Development in Rural Alaska</td>
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<td>Rural Alaska Land Issues</td>
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<td>Perspectives on Subsistence in Alaska</td>
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<td>RD F280</td>
<td>Resource Management Research Techniques</td>
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<td>TM F120</td>
<td>Introduction to Tribal Natural Resource Management</td>
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<td>TM F140</td>
<td>Introduction to Geospatial Data</td>
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<td>TM F141</td>
<td>Practical GIS for Rural Alaska</td>
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<td>TM F142</td>
<td>Practical GIS Project Design</td>
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<td>TM F182</td>
<td>Introduction to NEPA for Rural Transportation</td>
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<td>TM F225</td>
<td>Cross Connections: Adapting and Integrating Principles of Management and Conservation</td>
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<td>HUMS F105</td>
<td>Personal Awareness and Growth</td>
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<td>HUMS F120</td>
<td>Cultural Diversity in Human Services</td>
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<td>HUMS F205</td>
<td>Basic Principles of Group Counseling</td>
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<td>HUMS F260</td>
<td>History of Alcohol in Alaska</td>
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<td>PSY F101X</td>
<td>Introduction to Psychology</td>
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<td>RHS F130</td>
<td>Processes of Community Change</td>
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<td>RHS F275</td>
<td>Introduction to Recovery and Mental Illness</td>
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<td>RHS F285</td>
<td>Case Management</td>
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<td>RNS F101</td>
<td>Rural Nutrition and Health Change</td>
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<td>RNS F105</td>
<td>Nutrition Science for the Generations</td>
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<td>Alaska Native Food Systems</td>
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<td>Community Nutrition Interventions</td>
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<td>Introduction to Rural Nutrition Counseling</td>
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<td>Introduction to Social Work</td>
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<td>Ethics, Values and Social Work Practice</td>
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Community Health and Wellness

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<td>SWK F103X</td>
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<td>SWK F220</td>
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Tribal Planning

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Tribal Transportation

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<td>Basics of a Good Gravel Road</td>
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<td>Transportation Improvement Programs and Control Schedules</td>
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<td>Road Inventory Field Data System</td>
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Students can specialize in one area of study or can choose from multiple areas of study. Course substitutions relevant to tribal management may be made with the approval of the tribal management faculty advisor.

Certificate, Tribal Management

Minimum Requirements for Certificate: 30 credits

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Minor, Tribal Management

Minimum Requirements for Minor: 15 credits
Students must earn C- grade or better in each course.

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<td>TM F201</td>
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Yup'ik Language Proficiency

Alaska Native Languages Program
907-474-7874
College of Community and Rural Development
907-474-7143
http://www.uaf.edu/anlc/classes/

Certificate; A.A.S. Degree

Minimum Requirements for Certificate: 30 credits; for Degree: 60 credits

The Yup’ik language proficiency program is designed to provide students with the opportunity to pursue structured study of Yup’ik in order to develop intermediate-level speaking and listening skills, as well as basic reading and writing abilities in the language. The certificate may serve as a step on the way to a two-year or four-year degree.

Degree
• A.A.S., Yup’ik Language Proficiency (p. 140)

Certificate
• Yup’ik Language Proficiency (p. 140)

A.A.S., Yup’ik Language Proficiency

Minimum Requirements for Degree: 60 credits
Students must earn a C- grade or better in each course.

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Certificate, Yup’ik Language Proficiency

Minimum Requirements for Certificate: 30 credits

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Complete one from the following sequences:

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<tr>
<td>and YUP F125</td>
<td>and Elementary Central Yup’ik</td>
<td></td>
</tr>
<tr>
<td>and YUP F126</td>
<td>Apprenticeship III</td>
<td></td>
</tr>
</tbody>
</table>

Complete one from the following sequences:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUP F205</td>
<td>Regaining Fluency in Yup’ik</td>
<td>9</td>
</tr>
<tr>
<td>and YUP F206</td>
<td>and Regaining Fluency in Yup’ik II</td>
<td></td>
</tr>
<tr>
<td>and YUP F223</td>
<td>and Intermediate Central Yup’ik</td>
<td></td>
</tr>
<tr>
<td>and YUP F224</td>
<td>Apprenticeship III</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Course Description</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------</td>
<td></td>
</tr>
<tr>
<td>YUP F221</td>
<td>Intermediate Central Yup'ik</td>
<td></td>
</tr>
<tr>
<td>and YUP F222</td>
<td>Apprenticeship I</td>
<td></td>
</tr>
<tr>
<td>and YUP F223</td>
<td>and Intermediate Central Yup'ik</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apprenticeship II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Intermediate Central Yup'ik</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apprenticeship III</td>
<td></td>
</tr>
</tbody>
</table>

As part of the certificate requirements, the communication, computation and human relations content is embedded in some of the major required courses for this program.
HOW TO EARN A BACHELOR’S DEGREE

To earn a UAF degree, you must satisfy the following sets of requirements: general university requirements, degree requirements and program (major) requirements. General university requirements and degree requirements are described in this section of the catalog; major requirements are found in the Bachelor’s Degree Programs section; for bachelor’s degree requirements in brief, see Summary of Bachelor’s Degree Requirements (p. 147) chart.

If your degree program is delivered collaboratively within the UA system, credits you earn from each UA institution will be counted toward fulfillment of degree requirements and the minimum institutional residency requirements. You must contact Admissions to bring any credit from another UA system in. Credits will not transfer automatically. Institutional residency requirements are the minimum number of credits you must earn from the campus where you earn a degree.

General University Requirements

For a UAF bachelor’s degree, you must earn at least 120 semester credits, including transfer credits, at the 100-level or above. Of these, 39 credits must be upper-division (300-level or above), of which 24 must be UA residence credits and 15 must be UAF credits.

At least 30 semester credits applicable to any bachelor’s degree must be earned at UAF. Transfer students need to earn at least 24 upper-division semester credits at UA, of which 15 must be UAF credits. Transfer students must earn at least 12 semester credits in the major and at least 3 semester credits in the minor. You must earn a C- grade or higher in all courses required for your degree, unless otherwise specified by your major (major, minor, general education requirements and degree requirements).

Unless otherwise specified, a course may be used more than once toward fulfilling degree, certificate, major and minor requirements. Credit hours for these courses count only once toward total credits required for the degree or certificate.

Since WRTG F211X, WRTG F212X, WRTG F213X and WRTG F214X are writing courses, any will satisfy the second half of the requirement in written communication for the bachelor’s degree. But you can’t enroll in WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X without first fulfilling the WRTG F111X requirement. (See Local Advanced Placement Credit – English (p. 34).)

General University Requirements for Baccalaureate Degrees

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum number of credits</td>
<td>120</td>
</tr>
<tr>
<td>Credits earned at UAF (residence credit)</td>
<td>30</td>
</tr>
<tr>
<td>Upper-division credit (courses with numbers</td>
<td>39</td>
</tr>
<tr>
<td>between F300 and F499)</td>
<td></td>
</tr>
<tr>
<td>Additional UAF credit that must be earned by</td>
<td>12</td>
</tr>
<tr>
<td>transfer students</td>
<td></td>
</tr>
<tr>
<td>Grade point average</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Minimun grades for major | No grade lower than C- in courses required for major. Some majors require higher GPA’s for major course work.

Catalog year that can be used to determine requirements | May use any catalog in effect when enrolled as a degree-seeking student, regardless of major; seven-year limit on catalog year

Second degree | 24 credits beyond the first bachelor’s degree and all requirements for the second degree must be met

MAJORS

You may declare a major when you are admitted to UAF as a degree-seeking undergraduate student. If you haven’t chosen a major you’ll be enrolled as a general studies student. Nondegree students are not eligible to declare a major, be assigned class standing or receive financial aid.

A major from UAF consists of a minimum of 30 credits, at least 12 of which have to be earned at UAF. No grade lower than C- in courses required for major. Some majors require higher GPAs for major course work.

Students enrolled in associate degree or certificate programs who want to declare a bachelor’s degree major must apply for admission to a degree program following the standard admission process for bachelor’s degree programs. The same is true for students enrolled in a bachelor’s degree program who want to declare an associate degree or certificate program major. (See admission requirements (p. 28).)

Changing Your Major

Undergraduate students may change majors by completing a change of major form available from the Office of the Registrar or online at the registrar website. A change of major becomes effective after it is processed by the Office of the Registrar. Graduating seniors must have a change of major submitted with their graduation application to be considered in that program.

CONCENTRATIONS

A concentration is an area of emphasis including the program’s required courses within a student’s degree program. Some programs at UAF require a concentration, others do not. A student may only earn one degree in a specific discipline once. Using different concentrations within a degree program to count as different degrees is not allowed. Double concentrations are permitted with departmental approval.

MINORS

A minor is a component of a bachelor’s degree. The Bachelor of Arts degrees requires a minor. You must satisfactorily complete the requirements for a minor before a B.A. degree can be awarded. A minor is optional for Bachelor of Applied Arts and Sciences, Bachelor of Applied Management, Bachelor of Business Administration, Bachelor of Fine Arts, Bachelor of Music, Bachelor of Science, Bachelor of Security and Emergency Management and Bachelor of Sport and Recreational Business degrees.

A minor from UAF consists of a minimum of 15 credits, at least 3 of which have to be earned at UAF. Students must earn a cumulative GPA of at least 2.0 (C) in the minor and follow minor requirements from the same academic catalog used for their bachelor’s program. An Associate of Applied Science degree or certificate of at least 30 credits earned...
at any regionally accredited college or university may be used to meet requirements for a minor in B.A. degree programs.

Some minors require more than 15 credits and approval from the department. Refer to specific requirements listed in the Bachelor’s Degree Program section. Students seeking minors can use DegreeWorks to review their options. Results in DegreeWorks will be more accurate after submitting a declaration of minor form to the Office of the Registrar by the beginning of the senior year.

SECOND BACHELOR’S DEGREE

UAF graduates who want to earn a second bachelor’s degree must complete at least 24 hours of credit beyond the first bachelor’s degree. Students must meet all general university requirements, degree requirements and major requirements for both degrees.

Students who earned a bachelor’s degree from another college or university must be accepted for admission as a transfer student. All general university requirements (including residency requirement), degree and major requirements must be met. Students who graduated from a regionally accredited college or university, however, will be considered to have completed the equivalent of the UAF baccalaureate general education requirements.

DOUBLE DEGREES

Students who want to earn more than one UAF bachelor’s degree must complete all general requirements as well as all major and minor requirements (if any) for all degrees. At least 24 semester credit hours beyond the total required for the first degree need to be earned before any additional degrees can be awarded. For two degrees completed at the same time, students may follow requirements from two different catalogs.

Differences Between Double Majors and Double Degrees

<table>
<thead>
<tr>
<th></th>
<th>Double Majors</th>
<th>Double Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree(s) earned</td>
<td>One bachelor’s degree is earned. The Bachelor of Arts degree requires the completion of two majors rather than a major and a minor. Majors are selected from those approved for the B.A. degree. The Bachelor of Science degree requires the completion of a double major instead of a single major. Majors are selected from those approved for the B.S. degree.</td>
<td>More than one bachelor’s degree is earned. Can be the same degree (e.g., two BAs) or different degrees, (e.g., B.A. and B.S., B.B.A. and B.S., B.F.A. and B.A., etc.). Each degree is independent of the other. If requirements for one degree are not completed as scheduled, the other degree may be awarded if all requirements are met.</td>
</tr>
<tr>
<td>Graduation application</td>
<td>A single graduation application and fee is required.</td>
<td>A separate graduation application and fee is required for each degree.</td>
</tr>
</tbody>
</table>

Catalog year

<table>
<thead>
<tr>
<th>Catalog year</th>
<th>A single catalog is followed for both majors to meet requirements.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Different catalogs may be followed to meet requirements for each degree.</td>
</tr>
</tbody>
</table>

General university requirements and major requirements

<table>
<thead>
<tr>
<th>General university requirements</th>
<th>All general university requirements and all major requirements for both majors must be met.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All general university requirements as well as all major and minor requirements (if any) must be met for each degree.</td>
</tr>
</tbody>
</table>

Credit hours required

<table>
<thead>
<tr>
<th>Credit hours required</th>
<th>If one major is from a program that requires 120 total credits and the other major is from a program that requires 130 total credits, the 130 total credits must be completed.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At least 24 semester credit hours beyond the total required for the first degree must be completed before an additional degree can be awarded.</td>
</tr>
</tbody>
</table>

RESIDENCE CREDIT

Residence credit is course credit earned through any unit of UAF. Formal classroom instruction, correspondence study, distance-delivered courses, individual study or research at UAF are all considered residence credit. On the other hand, transfer credit, advanced placement credit, credit for prior learning, military service credit and credit granted through nationally prepared examinations are not considered resident credit, nor are credit-by-examination credits earned through locally prepared tests. None of these types of credit can be applied to UAF residency requirements.

UAF residence credit takes precedence over any nonresident credits. For example, if a student has AP credit for a course, but takes the same courses at UAF, the AP credit will be excluded and the UAF course will be applied to the degree requirements.

RESIDENCY REQUIREMENT

Most universities have residency requirements that call for a certain number of credits toward a degree to be earned at the degree-granting school. At UAF, the residency requirement for bachelor’s degrees is 30 resident credits.

DEGREE REQUIREMENTS AND TIME LIMITS

You may complete degree requirements in effect and published in the UAF catalog in any one of the previous seven academic years in which you are enrolled as a degree student for a bachelor’s degree. You’re considered enrolled in your degree program when you complete the appropriate degree student registration procedure. If you do not enroll for a semester or more, or if you enroll through the nondegree student registration process, you aren’t considered enrolled as a degree student during that time.

EXCEPTIONS TO DEGREE REQUIREMENTS

Occasionally an undergraduate student may request an exception to an academic requirement or regulation. Requests for an academic dispensation must be approved by petition. If you submit a petition on the basis of a disability, the coordinator of Disability Services will be consulted. Petition forms are available at the Office of the Registrar or online at the registrar website. Forms need to be returned to the Office of the Registrar with required signatures of approval. The Office of the Registrar will notify you of your petition in Degreeworks once the appropriate person or committee has made a decision. Academic petitions fall into three categories and each involves different processes:
• General Education Requirements Petitions
If your petition deals with baccalaureate general education requirements or baccalaureate degree ethics or library science requirements, your advisor and the head of the department of the academic area involved must grant approval. Submit your signed petition to the Office of the Registrar. It will then be forwarded to the chair of the Faculty Senate CORE/General Education Requirements Curriculum Review Committee for consideration.

• Major or Minor Degree Requirement Petitions
If you want to waive or substitute courses within your major or minor requirements, you need approval signatures from your advisor and the department or program head of your major or minor area. Submit your signed petition to the Office of the Registrar.

• Petitions for Other Requirements
If your petition deals with general university and/or specific requirements for your degree or other academic policies, you need approval from your advisor and the dean or director of the college or school in which your major is located. Submit your signed petition to the Office of the Registrar. It will then be forwarded to the Provost for consideration.

RESERVING COURSES FOR GRADUATE PROGRAMS
Seniors who have only a few remaining requirements for a bachelor’s degree may take courses at the 400 or 600 graduate course level and have them reserved for an advanced degree. Courses reserved for use toward a graduate program cannot also be counted toward requirements for your bachelor’s degree. Unless otherwise notified in writing that the courses are to be used toward the undergraduate program, 600-level graduate courses will automatically be reserved for the advanced degree. To reserve one or more courses, you must be in your final year of an undergraduate program. Submit a written request to the Office of the Registrar during the first four weeks of the semester. The request should identify which semester courses you want reserved for graduate study and not counted toward your bachelor’s degree. (Reserving courses does not, however, assure that a graduate advisory committee will accept them as part of your eventual graduate program.)

GRADUATION
• Responsibility
You are responsible for meeting all requirements for graduation. You are encouraged to communicate regularly with your academic advisor and to use DegreeWorks throughout your college career to ensure you are on track to graduate.

• Application for Graduation
You need to formally apply for graduation. An application for graduation and non-refundable fee must be filed with the Office of the Registrar. We encourage students to apply the semester prior to the semester you plan to graduate. If you file your application by the published deadline, the graduation application fee is $50. If you miss that deadline, you can submit a late application for graduation by the published late graduation deadline for that semester. The fee for a late application is $80. Applications for graduation filed after the late deadline are processed for graduation the following semester. Students who apply for graduation and who do not complete degree requirements by the end of the semester must reapply for graduation and repay the fee.

• Diplomas and Commencement
UAF issues diplomas to graduates three times a year: in September, January and June. Students who complete degree requirements for UA Board of Regents-approved academic programs during the academic year are invited to participate in the annual commencement ceremony at the end of spring semester. Names of students receiving degrees/certificates appear in the commencement program and are released to the media unless you submit a written request not to do so to the graduation department. (See Information Release and FERPA (p. 55).) Graduates are responsible for ordering caps and gowns through the UAF bookstore in early spring.

• Graduation with Honors
Graduation with honors is a tribute that recognizes academic achievement. Honors graduates have earned a cumulative GPA of 3.5 or higher in all college work. If a student’s overall cumulative GPA is 3.5 or higher, a student graduates with the distinction of cum laude; 3.75 or higher, magna cum laude; 3.9 or higher and no grade lower than A-, summa cum laude. Your cumulative GPA for graduation with honors is based on all college work attempted at UAF, including any repeated or omitted credits due to Fresh Start. For transfer students to be considered for graduation with honors, they must have:
  • 3.5 cumulative GPA in all attempted UAF credits, and
  • UAF residence credit of 48 semester hours for a bachelor’s degree.

Once those requirements are met, a cumulative GPA is calculated combining all college work attempted at UAF, as well as all college work attempted at any other institutions you’ve attended, including repeated credits and any credits that may not have been accepted for transfer to UAF. The combined cumulative GPA must also be 3.5 or higher for a transfer student to graduate with honors.

Types of Bachelor’s Degrees
• Bachelor of Applied Arts and Sciences
The B.A.A.S. interdisciplinary degree designed for students with technical or vocational backgrounds who want to enhance their experiences with more advanced academic pursuits.

• Bachelor of Applied Management
The B.A.M. online degree is designed for individuals who have completed 21-30 credit hours in an area of specialization or trade and aspire to assume middle management-level positions in their chosen field.

• Bachelor of Arts
The B.A. degree emphasizes written and oral communication skills, creative thinking, critical analyses of texts, understanding cultures, and a working knowledge of social, political and historical contexts. The degree is typically pursued by students whose major areas of study are directed toward humanities, arts and social science disciplines.

• Bachelor of Business Administration
The B.B.A. degree is the undergraduate equivalent of an MBA. Students explore a wide spectrum of business-related issues to develop advanced business, management and administration skills required in organizational settings at senior levels, and to accelerate high-level career development in the workplace.

• Bachelor of Fine Arts
The B.F.A. degree has a rigorous curriculum designed to prepare talented students for professional careers in the arts.

• Bachelor of Music
The B.M. degree encourages acquisition of skills and display of talent in music, with special emphasis on aesthetic performance and understanding.

- **Bachelor of Security and Emergency Management**
  The B.S.E.M. degree prepares students for professional careers responding to natural and man-made disasters, forming crisis management plans and ensuring public safety. Students with backgrounds ranging from first responders and military to applied vocational skills will graduate ready to start or advance in careers in emergency management, homeland security, public safety and emergency services.

- **Bachelor of Science**
  The B.S. degree emphasizes oral and written communication skills and analytical skills for examining and solving problems. The degree is typically pursued by students whose major areas of study are directed toward natural sciences, mathematics, statistics, engineering, computer science and some social science fields.

- **Bachelor of Sport and Recreation Business**
  The B.S.R.B. will provide academic preparation and sought-after, critical education necessary for entry-level careers in the sport and recreation industries.

**Bachelor’s Degree Requirements**

**THE GENERAL EDUCATION REQUIREMENTS**

For a summary of the general education requirements see the general education requirements (p. 145) chart. Undergraduate bachelor’s study at UAF is characterized by a common set of learning experiences known as the General Education Requirements. General education objective and learning outcomes for undergraduate students seeking baccalaureate degrees at the University of Alaska Fairbanks:

1. Build knowledge of human institutions, sociocultural processes, and the physical and natural world through the study of the natural and social sciences, technologies, mathematics, humanities, histories, languages and the arts.
2. Develop intellectual and practical skills across the curriculum, including inquiry and analysis, critical and creative thinking, problem-solving, written and oral communication, information literacy, technological competence, and collaborative learning.
3. Acquire tools for effective civic engagement in local through global contexts, including ethical reasoning, intercultural competence, and knowledge of Alaska and Alaska issues.
4. Integrate and apply learning, including synthesis and advanced accomplishment across general and specialized studies, adapting them to new settings, questions and responsibilities, and forming a foundation for lifelong learning.

If you completed your bachelor’s degree, an associate of arts degree or associate of science degree from a regionally accredited institution, you will be considered to have completed the equivalent of the general education requirements when you have been officially accepted to an undergraduate degree program at UAF.

Courses that satisfy the GER have course numbers ending with X. For example, WRTG F111X and COJO F141X meet specific GER communication requirements. Courses used to satisfy general education requirements can also be used to satisfy minor requirements. Natural science and mathematics credits used to satisfy general education requirements can also be used to satisfy major requirements. If additional courses are added to GER in later catalog years, students may use them to fulfill a specific GER in this catalog year. Students must earn a C- grade or higher in each course used to meet a baccalaureate GER.

**General Education Requirements at a Glance**

**Minimum Requirements for General Education Requirements:**

- **35-40 credits**

Refer to tables below for specific courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>(p. 146)</td>
<td>9</td>
</tr>
<tr>
<td>Arts</td>
<td>(p. 146)</td>
<td>3</td>
</tr>
<tr>
<td>Humanities</td>
<td>(p. 146)</td>
<td>3-5</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>(p. 146)</td>
<td>6</td>
</tr>
<tr>
<td>Additional Arts/Humanities/Social Sciences</td>
<td>(p. 147)</td>
<td>3-5</td>
</tr>
<tr>
<td>Mathematics</td>
<td>(p. 147)</td>
<td>3-4</td>
</tr>
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</table>
## Natural Sciences (p. 147)

### Course Requirements

#### COMMUNICATION

<table>
<thead>
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<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>COJO F121X</td>
<td>Introduction to Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>or COJO F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
<td></td>
</tr>
<tr>
<td>or COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
<td></td>
</tr>
<tr>
<td>WRTG F111X</td>
<td>Writing Across Context</td>
<td>3</td>
</tr>
<tr>
<td>WRTG F211X</td>
<td>Writing and the Humanities</td>
<td>3</td>
</tr>
<tr>
<td>or WRTG F212X</td>
<td>Writing and the Professions</td>
<td></td>
</tr>
<tr>
<td>or WRTG F213X</td>
<td>Writing and the Sciences</td>
<td></td>
</tr>
<tr>
<td>or WRTG F214X</td>
<td>Arguing Across Context</td>
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</table>

#### ARTS

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</thead>
<tbody>
<tr>
<td>ANS/FLPA F161X</td>
<td>Introduction to Alaska Native Performance</td>
<td>3</td>
</tr>
<tr>
<td>ANS F202X</td>
<td>Aesthetic Appreciation of Alaska Native Performance</td>
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</tr>
<tr>
<td>ANS/MUS/ACNS F223X</td>
<td>Alaska Native Music</td>
<td></td>
</tr>
<tr>
<td>ART F200X</td>
<td>Explorations in Art</td>
<td></td>
</tr>
<tr>
<td>ART F261X</td>
<td>History of World Art</td>
<td></td>
</tr>
<tr>
<td>ART F262X</td>
<td>History of World Art</td>
<td></td>
</tr>
<tr>
<td>ENGL/FLPA/COJO F217X</td>
<td>Introduction to the Study of Film</td>
<td></td>
</tr>
<tr>
<td>FLPA/COJO F105X</td>
<td>History of the Cinema</td>
<td></td>
</tr>
<tr>
<td>FLPA F200X</td>
<td>Performance, Production and the Audience</td>
<td></td>
</tr>
<tr>
<td>FLPA F215X</td>
<td>Dramatic Literature and History</td>
<td></td>
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<tr>
<td>HUM F201X</td>
<td>Unity in the Arts</td>
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<tr>
<td>MUS F103X</td>
<td>Music Fundamentals</td>
<td></td>
</tr>
<tr>
<td>MUS F125X</td>
<td>Enjoying Jazz</td>
<td></td>
</tr>
<tr>
<td>MUS F200X</td>
<td>Explorations in Music</td>
<td></td>
</tr>
</tbody>
</table>

#### HUMANITIES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F251X</td>
<td>Introduction to Athabascan Linguistics</td>
<td>3-5</td>
</tr>
<tr>
<td>ANL F255X</td>
<td>Introduction to Alaska Native Languages</td>
<td></td>
</tr>
<tr>
<td>COJO F101X</td>
<td>Media and Culture</td>
<td></td>
</tr>
<tr>
<td>COJO F102X</td>
<td>Introduction to Broadcasting</td>
<td></td>
</tr>
<tr>
<td>ENGL/FL F200X</td>
<td>World Literature</td>
<td></td>
</tr>
<tr>
<td>ENGL F270X</td>
<td>Introduction to Creative Writing</td>
<td></td>
</tr>
<tr>
<td>LING F101X</td>
<td>Nature of Language</td>
<td></td>
</tr>
<tr>
<td>LING F216X</td>
<td>Languages of the World</td>
<td></td>
</tr>
<tr>
<td>PHIL F102X</td>
<td>Introduction to Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL F104X</td>
<td>Logic and Reasoning</td>
<td></td>
</tr>
<tr>
<td>RELG F221X</td>
<td>Religions of the World</td>
<td></td>
</tr>
<tr>
<td>or take one of the following languages:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANL F141X</td>
<td>Beginning Athabascan-Koyukan or Gwich’in</td>
<td></td>
</tr>
<tr>
<td>ANL F142X</td>
<td>Beginning Athabascan</td>
<td></td>
</tr>
<tr>
<td>ASLG F101X</td>
<td>American Sign Language I</td>
<td></td>
</tr>
<tr>
<td>ASLG F202X</td>
<td>American Sign Language II</td>
<td></td>
</tr>
<tr>
<td>CHNS F101X</td>
<td>Elementary Chinese I</td>
<td></td>
</tr>
<tr>
<td>CHNS F102X</td>
<td>Elementary Chinese II</td>
<td></td>
</tr>
<tr>
<td>FREN F101X</td>
<td>Elementary French I</td>
<td></td>
</tr>
<tr>
<td>FREN F102X</td>
<td>Elementary French II</td>
<td></td>
</tr>
<tr>
<td>GER F101X</td>
<td>Elementary German I</td>
<td></td>
</tr>
<tr>
<td>GER F102X</td>
<td>Elementary German II</td>
<td></td>
</tr>
<tr>
<td>INU F111X</td>
<td>Elementary Inupiaq</td>
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</tr>
<tr>
<td>INU F112X</td>
<td>Elementary Inupiaq</td>
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</tr>
<tr>
<td>JPN F101X</td>
<td>Elementary Japanese I</td>
<td></td>
</tr>
<tr>
<td>JPN F102X</td>
<td>Elementary Japanese II</td>
<td></td>
</tr>
<tr>
<td>LAT F101X</td>
<td>Beginning Latin I</td>
<td></td>
</tr>
<tr>
<td>LAT F102X</td>
<td>Beginning Latin II</td>
<td></td>
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<tr>
<td>RUSS F101X</td>
<td>Elementary Russian I</td>
<td></td>
</tr>
<tr>
<td>RUSS F102X</td>
<td>Elementary Russian II</td>
<td></td>
</tr>
<tr>
<td>SPAN F101X</td>
<td>Elementary Spanish I</td>
<td></td>
</tr>
<tr>
<td>SPAN F102X</td>
<td>Elementary Spanish II</td>
<td></td>
</tr>
<tr>
<td>YUP F101X</td>
<td>Elementary Central Yup’ik</td>
<td></td>
</tr>
<tr>
<td>YUP F102X</td>
<td>Elementary Central Yup’ik</td>
<td></td>
</tr>
</tbody>
</table>

#### SOCIAL SCIENCES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
<td>6</td>
</tr>
<tr>
<td>ANS F111X</td>
<td>History of Colonization in Alaska: The Indigenous Response</td>
<td></td>
</tr>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
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</tr>
<tr>
<td>ANTH F100X</td>
<td>Individual, Society and Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH F101X</td>
<td>Introduction to Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH F111X</td>
<td>Ancient Civilizations</td>
<td></td>
</tr>
<tr>
<td>ANTH F211X</td>
<td>Fundamentals of Archaeology</td>
<td></td>
</tr>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
<td></td>
</tr>
<tr>
<td>BA F254X</td>
<td>Personal Finance (s)</td>
<td></td>
</tr>
<tr>
<td>BA/SPRT F281X</td>
<td>Introduction to Sport Management</td>
<td></td>
</tr>
<tr>
<td>ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
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<tr>
<td>ECON F100X</td>
<td>Political Economy</td>
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</tr>
<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
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</tr>
<tr>
<td>ECON F202X</td>
<td>Principles of Economics II: Macroeconomics</td>
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<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
<td></td>
</tr>
<tr>
<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credits</td>
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<tr>
<td>----------</td>
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<tr>
<td>HIST F100X</td>
<td>Modern World History</td>
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<tr>
<td>HIST F102X</td>
<td>Western Civilization Since 1500</td>
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</tr>
<tr>
<td>HIST F122X</td>
<td>East Asian Civilization</td>
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<tr>
<td>HIST F132X</td>
<td>History of the U.S.</td>
<td></td>
</tr>
<tr>
<td>HUMS/JUST F125X</td>
<td>Introduction to Addictive Processes</td>
<td></td>
</tr>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
<td></td>
</tr>
<tr>
<td>JUST F251X</td>
<td>Political Economy</td>
<td></td>
</tr>
<tr>
<td>PS F100X</td>
<td>Introduction to American Government and Politics</td>
<td></td>
</tr>
<tr>
<td>PS F201X</td>
<td>Comparative Politics</td>
<td></td>
</tr>
<tr>
<td>PS F221X</td>
<td>International Politics</td>
<td></td>
</tr>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
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<tr>
<td>RD F200X</td>
<td>Rural Development in the North</td>
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</tr>
<tr>
<td>SOC F101X</td>
<td>Introduction to Sociology</td>
<td></td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems and Solutions</td>
<td></td>
</tr>
<tr>
<td>SWK F103X</td>
<td>Introduction to Social Work</td>
<td></td>
</tr>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women’s Gender and Sexuality Studies</td>
<td></td>
</tr>
</tbody>
</table>

### ADDITIONAL ARTS/HUMANITIES/SOCIAL SCIENCES

Complete one additional course from the arts, humanities or social sciences courses listed above.

### MATHEMATICS

Complete one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F113X</td>
<td>Numbers and Society</td>
<td>3-4</td>
</tr>
<tr>
<td>MATH F114X</td>
<td>Patterns and Society</td>
<td></td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Essential Precalculus with Applications</td>
<td></td>
</tr>
<tr>
<td>MATH F151X</td>
<td>College Algebra for Calculus ¹</td>
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</tr>
<tr>
<td>MATH F152X</td>
<td>Trigonometry</td>
<td></td>
</tr>
<tr>
<td>MATH F156X</td>
<td>Precalculus</td>
<td></td>
</tr>
<tr>
<td>MATH F230X</td>
<td>Essential Calculus with Applications ²,³</td>
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</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I ²,³</td>
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<tr>
<td>MATH F252X</td>
<td>Calculus II ³</td>
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</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III ³</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td></td>
</tr>
</tbody>
</table>

You may earn credit for MATH F151X or MATH F122X but not both.

You may earn credit for MATH F251X or MATH F230X but not both.

Or any math course having one of these as a prerequisite.

### NATURAL SCIENCES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
<td>8</td>
</tr>
<tr>
<td>BIOL F100X</td>
<td>Human Biology</td>
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</tr>
<tr>
<td>BIOL F103X</td>
<td>Biology and Society</td>
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<tr>
<td>BIOL F104X</td>
<td>Natural History of Alaska</td>
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<tr>
<td>BIOL F111X</td>
<td>Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F112X</td>
<td>Human Anatomy and Physiology II</td>
<td></td>
</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td></td>
</tr>
<tr>
<td>BIOL F120X</td>
<td>Introduction to Human Nutrition</td>
<td></td>
</tr>
<tr>
<td>CHEM F100X</td>
<td>Chemistry in Complex Systems</td>
<td></td>
</tr>
<tr>
<td>CHEM F103X</td>
<td>Introduction to General Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM F104X</td>
<td>Introduction to Organic Chemistry and Biochemistry</td>
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</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
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<tr>
<td>CHEM F111X</td>
<td>Introduction to Environmental Chemistry of the Arctic</td>
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</tr>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
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<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
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<tr>
<td>GEOS F106X</td>
<td>Life in the Age of Dinosaurs</td>
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</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td></td>
</tr>
<tr>
<td>GEOS F120X</td>
<td>Glaciers, Earthquakes and Volcanoes: Past, Present and Future</td>
<td></td>
</tr>
<tr>
<td>MSL F111X</td>
<td>The Oceans</td>
<td></td>
</tr>
<tr>
<td>PHYS F102X</td>
<td>Energy and Society</td>
<td></td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F104X</td>
<td>College Physics II</td>
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<tr>
<td>PHYS F115X</td>
<td>Physical Sciences</td>
<td></td>
</tr>
<tr>
<td>PHYS F175X</td>
<td>Introduction to Astronomy</td>
<td></td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS F213X</td>
<td>Elementary Modern Physics</td>
<td></td>
</tr>
</tbody>
</table>

### Summary of Bachelor's Degree Requirements

General education requirements must be completed by all students. In addition to the general education requirements each degree program (e.g., B.A., B.B.A.) may have specific required courses.

See a list of all bachelor’s degree programs here. (p. 158)

**BACHELOR OF APPLIED ARTS AND SCIENCES**

The B.A.A.S. degree program offers qualified applicants the opportunity to expand upon their vocational or technical education. An A.A.S. degree from an accredited institution of higher education, or equivalent, is one of the degree program requirements. See the Applied Arts in Sciences in the bachelors degree program section.
## Requirement Type

<table>
<thead>
<tr>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td></td>
</tr>
<tr>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td>- COJO F121X</td>
<td></td>
</tr>
<tr>
<td>- COJO F131X or COJO F141X</td>
<td></td>
</tr>
<tr>
<td>- WRTG F111X</td>
<td></td>
</tr>
<tr>
<td>- WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.</td>
<td></td>
</tr>
<tr>
<td><strong>Library and Information Research</strong></td>
<td></td>
</tr>
<tr>
<td>Complete one from the following:</td>
<td></td>
</tr>
<tr>
<td>- LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
<tr>
<td><strong>Arts</strong></td>
<td></td>
</tr>
<tr>
<td>Complete one from the following:</td>
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</tr>
<tr>
<td><strong>Humanities</strong></td>
<td></td>
</tr>
<tr>
<td>Complete one from the following:</td>
<td></td>
</tr>
<tr>
<td>- No additional humanities unless required by major or minor</td>
<td></td>
</tr>
<tr>
<td><strong>Social Sciences</strong></td>
<td></td>
</tr>
<tr>
<td>Complete two courses from the following in two different disciplines:</td>
<td></td>
</tr>
<tr>
<td>- No additional social sciences unless required by major or minor</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>One additional Arts, Humanities or Social Sciences from the lists above.</td>
<td>ENGL F314</td>
</tr>
<tr>
<td><strong>Ethics</strong></td>
<td></td>
</tr>
<tr>
<td>Complete one from the following:</td>
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</tr>
<tr>
<td>- BA F323X, COJO F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X.</td>
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</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
</tr>
<tr>
<td>Complete one from the following:</td>
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</tr>
<tr>
<td>- One 3-credit course at the F100 level or above from math, computer sciences or statistics</td>
<td></td>
</tr>
</tbody>
</table>
### Natural Sciences
No additional natural science unless required by the major

### Major Complex
Minimum of 30 credits of interdisciplinary studies and an Associate of Applied Science degree

### Minor Complex
Total Required
38-44 cr

#### Note:
You must earn a C- grade or higher in all courses required for your degree unless otherwise specified by your major (major, minor, general education requirements and degree requirements).

### BACHELOR OF APPLIED MANAGEMENT

<table>
<thead>
<tr>
<th>Requirement Type</th>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X OR WRTG F214X, COJO F121X, COJO F131X OR COJO F141X</td>
<td>LS F101X or successful completion of library skills competency test</td>
</tr>
<tr>
<td>Library and Information Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>One additional Arts, Humanities or Social Sciences from the lists above.</td>
<td></td>
</tr>
</tbody>
</table>
### Ethics
- BA F323X

### Mathematics
- MATH F122X

### Natural Sciences
Complete two from the following:
- ATM F101X

### Major Complex
At least 33

### Minor Complex
Optional: at least 15 cr

### Total Required
120 cr

**Note:** You must earn a C- grade or higher in all courses required for your degree unless otherwise specified by your major (major, minor, general education requirements and degree requirements).

Courses beyond 30 credits in a major complex may be used to fulfill the B.A.M. degree requirements in ethics.

### BACHELOR OF ARTS AND BACHELOR OF FINE ARTS

<table>
<thead>
<tr>
<th>Requirement Type</th>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td>Complete the following: COJO F121X, COJO F131X or COJO F141X; WRTG F111X; and WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.</td>
<td></td>
</tr>
<tr>
<td><strong>Library and Information Research</strong></td>
<td>LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
<tr>
<td><strong>Humanities</strong></td>
<td>Complete one from the following: ANL F141X, ANL F142X, ANL F251X, ANL F255X, ASLG F101X, ASLG F202X, CHNS F101X, CHNS F102X, COJO F101X, COJO F102X, ENGL F200X/FL F200X, ENGL F270X, FREN F101X, FREN F102X, GER F101X, GER F102X, INU F111X, INU F112X, JPN F101X, JPN F102X, LAT F101X, LAT F102X, LING F101X, LING F216X, PHIL F102X, PHIL F104X, RELG F221X, RUSS F101X, RUSS F102X, SPAN F101X, SPAN F102X, YUP F101X, YUP F102X</td>
<td>Humanities and social sciences (18 cr): Any combination of courses at the F100 level or above with a minimum of 6 credits in humanities and 6 credits in social sciences or up to 12 credits of a non-English language taken at the university level and at least 6 credits of social sciences</td>
</tr>
</tbody>
</table>
Social Sciences

Ethics
Complete one from the following: BA F323X, COJO F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

Mathematics
Complete one from the following: MATH F113X, MATH F114X, MATH F122X, MATH F151X, MATH F152X, MATH F156X, MATH F230X, MATH F251X, MATH F252X, MATH F253X, or STAT F200X or any math course having one of these as a prerequisite

Natural Sciences

Other
One additional Arts, Humanities or Social Sciences from the lists above.

Notes:
You must earn a C- grade or higher in all courses required for your degree unless otherwise specified by your major (major, minor, general education requirements and degree requirements).

Department requirements for majors and minors may exceed the minimums indicated.

Of the above, at least 39 credits must be taken in upper-division (300-level or higher) courses. Courses beyond 30 credits in a major complex and 15 credits in a minor complex may be used to fulfill the B.A. degree requirements in ethics, humanities, mathematics or social sciences. Courses used to fulfill requirements for a minor may be used at the same time to fill major or general distribution requirements if so designated.

Students who hold a bachelor’s degree from a regionally accredited institution are not required to complete the minor complex.

- Minors
  Minors are offered in many subject areas. Requirements for minors are listed in the degree program sections. See a list of all bachelor’s degree programs, including minors, here (http://catalog.uaf.edu/programs).
  An Associate of Applied Science (A.A.S.) degree or certificate of at least 30 credits earned at any regionally accredited college or university may be used to meet requirements for a minor for the Bachelor of Arts (B.A.) degree. Students who hold a bachelor’s degree from a regionally accredited institution are not required to complete the minor complex.

- Double Majors
  If you’re a Bachelor of Arts degree candidate, you may complete two majors rather than a major and a minor. Your majors must be selected from those approved for the Bachelor of Arts degree. You’ll need to complete all general requirements plus all requirements for both majors. If you’re
BACHELOR OF BUSINESS ADMINISTRATION

<table>
<thead>
<tr>
<th>Requirement Type</th>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td>Complete the following: COJO F121X, COJO F131X or COJO F141X; WRTG F111X; and WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.</td>
<td></td>
</tr>
<tr>
<td><strong>Library and Information Research</strong></td>
<td>LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Complete one additional Arts, Humanities or Social Sciences from the lists above.</td>
<td>Complete the following: ACCT F261X; ACCT F262; AIS F101; AIS F324; AIS F342; BA F308; BA F309 or BA F310; BA F325; BA F330; BA F343; BA F360; BA F390; BA F462; ECON F201X; ECON F202X; ECON F227; HSEM F415, HSEM F416, HSEM F417 or HSEM F418; HSEM F445; and choose one 300-400 level ECON elective.</td>
</tr>
<tr>
<td><strong>Ethics</strong></td>
<td></td>
<td>BA F323X</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
<td>MATH F122X</td>
</tr>
</tbody>
</table>
**Natural Sciences**


No additional natural science required

**Major Complex**

At least 24-33 cr

**Minor Complex**

Optional: at least 15 cr

**Total Required**

38-44 cr

120 cr

**Notes:**

All majors must earn a C- grade or higher in the general education, degree, department and major-specific, minor and specific math and statistics requirements.

Department requirements for majors and minors may exceed the minimums indicated.

Of the above, at least 39 credits must be taken in upper-division (300-level or higher) courses.

Courses beyond 30 credits in a major complex may be used to fulfill the B.B.A. degree requirements in ethics.

**BACHELOR OF MUSIC**

<table>
<thead>
<tr>
<th>Requirement Type</th>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td>Complete the following: COJO F121X, COJO F131X or COJO F141X; WRTG F111X; and WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.</td>
<td>LS F101X or successful completion of library skills competency test</td>
</tr>
<tr>
<td><strong>Library and Information Research</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Social Sciences


No additional social sciences unless required by the major.

### Other

One additional Arts, Humanities or Social Sciences from the lists above.

### Ethics

Complete one from the following: BA F323X, COJO F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

### Mathematics

Complete one from the following: MATH F113X, MATH F114X, MATH F122X, MATH F151X, MATH F152X, MATH F156X, MATH F230X, MATH F251X, MATH F252X, MATH F253X, or STAT F200X or any math course having one of these as a prerequisite.

### Natural Sciences


No additional natural science required.

### Major Complex

85 or more cr

### Minor Complex

Optional: at least 15 cr

### Total Required

38-44 cr

### Notes:

You must earn a C- grade or higher in all courses required for your degree unless otherwise specified by your major (major, minor, general education requirements and degree requirements).

Department requirements for majors and minors may exceed the minimums indicated.

### BACHELOR OF SCIENCE

<table>
<thead>
<tr>
<th>Requirement Type</th>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Complete the following: COJO F121X, COJO F131X or COJO F141X, WRTG F111X; and WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.</td>
<td></td>
</tr>
<tr>
<td>Library and Information Research</td>
<td>LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
</tbody>
</table>
## Arts

## Humanities

No additional humanities unless required by major or minor

## Social Sciences

No additional social sciences unless required by major or minor

## Other
One additional Arts, Humanities or Social Sciences from the lists above.

## Ethics
Complete one from the following: BA F323X, COJO F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

## Mathematics
One 3-credit course at the F100 level or above from math, computer sciences or statistics (excluding DEVM courses). A 3-credit calculus course must be included in general education requirements or B.S. requirements

Complete one from the following: MATH F113X, MATH F114X, MATH F122X, MATH F151X, MATH F152X, MATH F156X, MATH F230X, MATH F251X, MATH F252X, MATH F253X, or STAT F200X or any math course having one of these as a prerequisite

## Natural Sciences
One-year sequence in one natural science beyond the general education requirements—8 cr (Total natural science courses used to meet general education requirements and B.S. requirements must represent at least two different natural sciences.)


## Notes:
- **Major Complex**: At least 30 cr
- **Minor Complex**: Optional: at least 15 cr
- **Total Required**: 38-44 cr
- **Total Required**: 120 cr*
You must earn a C- grade or higher in all courses required for your degree unless otherwise specified by your major (major, minor, general education requirements and degree requirements).

* Department requirements for majors and minors may exceed the minimums indicated, and most B.S. degree programs require 130 credits.

Of the above, at least 39 credits must be taken in upper-division (300-level or higher) courses. Courses beyond 30 credits in a major complex and 15 credits in a minor complex may be used to fulfill the B.S. degree requirements in ethics, mathematics or natural science. Courses used to fulfill requirements for a minor may be used at the same time to fill major or general distribution requirements if so designated.

- **Double Majors**
  As a Bachelor of Science degree candidate, you may complete a double major instead of a single major. Your majors must be selected from those approved for the Bachelor of Science degree. You'll need to complete all general requirements plus all requirements for both majors. If you're completing a double major, you need to officially declare both majors either when you're admitted or through the change of major procedure. You'll need to follow the degree requirements in a single catalog for both majors.

- **Optional Minor**
  You may elect to complete a minor with the B.S. degree under the following circumstances:
  
  a. You must declare your minor before the beginning of your final semester in the B.S. degree program. You need to complete a declaration of minor form and file it with the Office of the Registrar by the end of registration.
  
  b. Any minor approved for the B.A. degree may serve as a minor for the B.S. degree. All general and specific requirements for minors are the same as those listed for B.A. degree minors, including that courses used to meet minor requirements may not be used to meet major or general distribution requirements unless so designated. The catalog used for the minor must be the same as the catalog used for the major and general degree requirements.
  
  c. You must satisfactorily complete the requirements for the minor before your B.S. degree will be awarded. The minor will be listed on your transcript along with the B.S. degree.

### BACHELOR OF SECURITY AND EMERGENCY MANAGEMENT

<table>
<thead>
<tr>
<th>Requirement Type</th>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td>Complete the following: COJO F121X, COJO F131X or COJO F141X; WRTG F111X; and WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.</td>
<td></td>
</tr>
<tr>
<td><strong>Library and Information Research</strong></td>
<td>LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
</tbody>
</table>
### Social Sciences
No additional social science unless required by major or minor

### Other
One additional Arts, Humanities or Social Sciences from the lists above.

### Ethics
Complete one from the following: BA F323X, COJO F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

### Mathematics
Complete one from the following: MATH F113X, MATH F114X, MATH F122X, MATH F151X, MATH F152X, MATH F156X, MATH F230X, MATH F251X, MATH F252X, MATH F253X, or STAT F200X or any math course having one of these as a prerequisite

### Natural Sciences
No additional natural science required

### Major Complex
At least 78 cr

### Minor Complex
Optional: at least 15 cr

### Total Required
38-44 cr
120 cr

The B.S.E.M. degree prepares students for professional careers responding to natural and manmade disasters, forming crisis management plans and ensuring public safety. Students with backgrounds ranging from first responders and military to applied vocational skills graduate ready to start or advance in careers in emergency management, homeland security, public safety and emergency services. See Homeland Security and Emergency Management (p. 218) in Bachelor’s Degree Programs.

### Notes:
You must earn a C- grade or higher in all courses required for your degree unless otherwise specified by your major (major, minor, general education requirements and degree requirements).

Courses beyond 30 credits in a major complex may be used to fulfill the B.S.E.M. degree requirements in ethics.

### BACHELOR OF SPORT AND RECREATION BUSINESS

<table>
<thead>
<tr>
<th>Requirement Type</th>
<th>General Education Requirements</th>
<th>Degree Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X OR WRTG F214X, COJO F121X, COJO F131X OR COJO F141X</td>
<td></td>
</tr>
<tr>
<td>Library and Information Research</td>
<td>LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
</tbody>
</table>
Bachelor's Degree Programs

Accounting

School of Management

Bachelor's Degree Programs

Arts

Humanities

Social Sciences

Other
One additional Arts, Humanities or Social Sciences from the lists above.

Ethics
BA F323X

Mathematics
MATH F122X

Natural Sciences

Major Complex
At least 33

Minor Complex
Optional: at least 15 cr

Total Required
120 cr

Notes:
Courses beyond 30 credits in a major complex may be used to fulfill the B.S.R.B. degree requirements in ethics.

Bachelor's Degree Programs

Accounting

School of Management
Department of Accounting and Information Systems
907-474-7461
http://www.uaf.edu/som/degrees/undergraduate/acct/
**B.B.A. Degree**

Minimum Requirements for Degree: 120 credits

The accounting department offers an extensive program for those interested in the fields of general accounting, auditing, managerial accounting, taxation and government accounting. The objectives of the program are to provide a strong business background through an understanding of accounting and to train students for employment in accounting work.

The UAF accounting program is accredited by the Association to Advance Collegiate Schools of Business. Of the 529 AACSB-accredited programs in the U.S., only 176 have dual accreditation in business and accounting. The UAF accounting program is the only accounting program in Alaska with the AACSB accreditation.

The accounting program prepares students for certification as Certified Public Accountants, Certified Management Accountants, Certified Financial Managers, Certified Internal Auditors and Certified Fraud Examiners. The UAF accounting program places nearly 100 percent of its graduates.

**Degree**

- B.B.A., Accounting (p. 159)

**Minor**

- Minor, Accounting (p. 159)

**B.B.A., Accounting**

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.B.A. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.B.A. degree requirements. (p. 152)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the B.B.A. degree requirements, complete:</td>
<td></td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Essential Precalculus with Applications</td>
<td></td>
</tr>
<tr>
<td>BA F323X</td>
<td>Business Ethics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>ACCT F330</td>
<td>Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F342</td>
<td>Managerial Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F361</td>
<td>Intermediate Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F362</td>
<td>Intermediate Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F452</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT F472</td>
<td>Internal and Government Auditing</td>
<td></td>
</tr>
<tr>
<td>AIS F316</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete four from the following:</td>
<td>12</td>
</tr>
<tr>
<td>ACCT F401</td>
<td>Advanced Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT F404</td>
<td>Advanced Cost Accounting and Controllership</td>
<td></td>
</tr>
<tr>
<td>ACCT F414</td>
<td>Governmental and Nonprofit Accounting</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Electives may be taken as needed to meet 120 credits

1. As part of the B.B.A. degree requirements (p. 152), BA F462 fulfills the baccalaureate capstone requirement.

**Note:** The B.B.A. degree requires 50 percent of the accounting, business administration and economics credits to be earned in residence at UAF. Twenty-four of the last 30 credits must be taken at UAF.

**Minor, Accounting**

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F430</td>
<td>Advanced Taxes</td>
<td></td>
</tr>
<tr>
<td>ACCT F472</td>
<td>Internal and Government Auditing</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Electives may be taken as needed to meet 120 credits

**Note:** Courses completed to satisfy this minor can be used to simultaneously satisfy other major or general education requirements.

**Aerospace Engineering**

College of Engineering and Mines
907-474-6098
http://www.uaf.edu/cem/

**Minor Only**

**Minor**

- Minor, Aerospace Engineering (p. 159)

**Minor, Aerospace Engineering**

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME F451</td>
<td>Aerodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME F452</td>
<td>Introduction to Astrodynamics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete three from the following:</td>
<td>9-11</td>
</tr>
<tr>
<td>EE F444</td>
<td>Embedded Systems Design</td>
<td></td>
</tr>
<tr>
<td>EE F471</td>
<td>Automatic Control</td>
<td></td>
</tr>
<tr>
<td>or ME F409</td>
<td>Controls</td>
<td></td>
</tr>
<tr>
<td>GEOS F422</td>
<td>Geoscience Applications of Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>ME F408</td>
<td>Mechanical Vibrations</td>
<td></td>
</tr>
<tr>
<td>ME F450</td>
<td>Theory of Flight</td>
<td></td>
</tr>
<tr>
<td>ME F453</td>
<td>Propulsion Systems</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** This minor may require substantial prerequisite courses for non-ME and non-EE majors, which should be taken into consideration.
Alaska Native Languages

College of Liberal Arts
Alaska Native Languages Program
907-474-7874
http://www.uaf.edu/anlc/

Minor Only

The Alaska Native languages program offers courses in Eskimo, Aleut and Indian languages spoken in the state. Major and minor curricula are offered in Central Yup’ik Eskimo, the largest Alaska Native language in terms of number of speakers; and Inupiaq Eskimo, the second largest. Regular courses are also available in Gwich’in Athabascan. Individual or small-group instruction is available in other Athabascan languages as well as in Siberian Yup’ik, Alutiiq, Aleut and Tingit. UAF is the only university in the United States to provide such programs. Students interested in individual or small group interaction should contact the Alaska Native Language Center.

Professional opportunities for those skilled in Alaska Native languages exist in teaching, research and cultural, educational and political development. The A.A.S. degree and the 30-credit certificate in Native language education for either Inupiaq or Athabascan are available by distance delivery. Both provide training in language and culture for people interested in becoming Native language instructors, and both may serve as a step toward further education.

The Alaska Native language teaching program benefits from the research staff and library at the Alaska Native Language Center. Students have access to researchers who are world leaders in documenting Eskimo and northern Athabascan languages. The library houses more than 15,000 items, virtually everything written about Alaska Native languages, including copies of documentation dating to the 1700s.

Minor

• Minor, Alaska Native Languages (p. 160)

Minor, Alaska Native Languages

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any ANL, INU or YUP courses</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Alaska Native Studies

College of Rural and Community Development
Department of Alaska Native Studies and Rural Development
907-474-6528 or toll-free 1-866-478-2721
http://www.uaf.edu/dansrd/

B.A. Degree

Minimum Requirements for Degree: 120 credits

Alaska Native studies is a social science program that explores current and historical Alaska and broader circumpolar issues from the indigenous perspective. The curriculum grounds students in tribal histories and cultures, governmental policies and local indigenous affairs. The program incorporates Native traditional knowledge, wisdom and experience into contemporary issues and studies. Graduates are prepared to make leadership contributions throughout communities of the circumpolar North. They may also continue to higher education in fields such as law, policy making and Indigenous studies.

Students complete a concentration in one of three areas:

• Indigenous Peoples in Law, Governance and Politics
• Alaska Native Knowledge, Cultural Resources and Expression
• Alaska Native Peoples: Health, Wellness and Environment

Graduates may find employment in many different areas including government, health and social services, performance arts, justice and cultural programs. They may also serve as cultural ambassadors to promote cross-cultural communications across the North. The B.A. degree can be earned on the Fairbanks campus or through distance delivery and the department welcomes students pursing a second major or a minor.

Students applying for acceptance into the Alaska Native studies program need to complete a department-specific written questionnaire in addition to general university admission requirements. Findings from this process will be used to support the department advising process and assist students in connecting with faculty and mentors. The questionnaire is found on the DANSRD website under “How to Apply.”

Special application requirements and deadlines apply for distance B.A. programs.

Degree

• B.A., Alaska Native Studies (p. 160)

Minor

• Minor, Alaska Native Studies (p. 162)

B.A., Alaska Native Studies

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F101</td>
<td>Introduction to Alaska Native Studies</td>
<td>3</td>
</tr>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS F300</td>
<td>Alaska Native Writers Workshop</td>
<td>3</td>
</tr>
<tr>
<td>ANS F310</td>
<td>Indigenous Land Settlements</td>
<td>3</td>
</tr>
<tr>
<td>ANS F350</td>
<td>Cross-cultural Communication: Alaska Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>ANS F401</td>
<td>Cultural Knowledge of Native Elders</td>
<td>3</td>
</tr>
<tr>
<td>RD F350</td>
<td>Community Research in Indigenous Contexts</td>
<td>3</td>
</tr>
<tr>
<td>ANS F478</td>
<td>Alaska Native Studies Senior Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 9 ANS/RD/TM/ANL elective credits

Concentrations

1 Upper-division Credits
2 Includes Native Cultures of Alaska
3 Includes Alaska Native Studies Senior Thesis
Complete 21 credits from one of the following concentrations:

1. Indigenous Peoples in Law, Governance and Politics
2. Alaska Native Knowledge, Cultural Resources and Expression
3. Alaska Native People: Health, Wellness and Environment

Non-Fairbanks campus students choosing a minor other than rural development must verify that the required courses can be accessed via distance before declaring that minor. Courses used in the concentration area may be double-counted for the minor.

May not be counted toward an Alaska Native studies major if used to fulfill general education requirements.

Fulfills the baccalaureate capstone requirement. Students may substitute RD F475 with department chair approval.

Concentrations

These are recommended courses. Course substitutions up to 9 credits may be made with approval of the faculty advisor.

INDIGENOUS PEOPLES IN LAW, GOVERNANCE AND POLITICS

Prepares students to participate and represent their communities in the tribal, local, state and national arenas. For students interested in public service and/or legal careers.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F112/RD F110</td>
<td>Alaska Native Claims Settlement Act: Land Claims in the 21st Century</td>
<td>1</td>
</tr>
<tr>
<td>ANS F111X</td>
<td>History of Colonization in Alaska: The Indigenous Response</td>
<td>3</td>
</tr>
<tr>
<td>ANS/PS F315</td>
<td>Tribal People and Development</td>
<td>3</td>
</tr>
<tr>
<td>ANS/PS F425</td>
<td>Native Self-government</td>
<td>3</td>
</tr>
<tr>
<td>ANS/PS F450</td>
<td>Comparative Indigenous Rights and Policies</td>
<td>3</td>
</tr>
<tr>
<td>ANS F458</td>
<td>The Politics of Indigenous Identity</td>
<td>3</td>
</tr>
<tr>
<td>ANS F467</td>
<td>Beyond Violence: Alaska Native Healing and Justice</td>
<td>3</td>
</tr>
<tr>
<td>ANS F475</td>
<td>Alaska Native Social Change</td>
<td>3</td>
</tr>
<tr>
<td>PLS F280</td>
<td>Legal Research and Writing for Paralegals</td>
<td>3</td>
</tr>
<tr>
<td>RD F265</td>
<td>Perspectives on Subsistence in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>RD F470</td>
<td>The Alaska Native Claims Settlement Act: Pre-1971 to Present</td>
<td>3</td>
</tr>
<tr>
<td>RD F492</td>
<td>Rural Development Seminar</td>
<td>1-3</td>
</tr>
<tr>
<td>TM F201</td>
<td>Tribal Government in Alaska II</td>
<td>3</td>
</tr>
</tbody>
</table>

ALASKA NATIVE KNOWLEDGE, CULTURAL RESOURCES AND EXPRESSION

Prepares students for careers involving literature, cultural preservation, cultural resource management and the performing arts.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F112/RD F110</td>
<td>Alaska Native Claims Settlement Act: Land Claims in the 21st Century</td>
<td>1</td>
</tr>
<tr>
<td>ANS F111X</td>
<td>History of Colonization in Alaska: The Indigenous Response</td>
<td>3</td>
</tr>
<tr>
<td>ANS F160</td>
<td>Alaska Native Dance (Fairbanks only)</td>
<td>1</td>
</tr>
<tr>
<td>ANS F202X</td>
<td>Aesthetic Appreciation of Alaska Native Performance</td>
<td>3</td>
</tr>
<tr>
<td>ANS F223X</td>
<td>Alaska Native Music (Fairbanks only)</td>
<td>3</td>
</tr>
<tr>
<td>ANS F251</td>
<td>Practicum in Native Cultural Expression (Fairbanks only)</td>
<td>1-3</td>
</tr>
<tr>
<td>ANS F268</td>
<td>Beginning Native Art Studio (Fairbanks only)</td>
<td>3</td>
</tr>
<tr>
<td>ANS/PS F315</td>
<td>Tribal People and Development</td>
<td>3</td>
</tr>
<tr>
<td>ANS F348</td>
<td>Native North American Women</td>
<td>3</td>
</tr>
<tr>
<td>ANS F349</td>
<td>Narrative Art of Alaska Native Peoples (in English translation)</td>
<td>3</td>
</tr>
<tr>
<td>ANS F351</td>
<td>Practicum in Native Cultural Expression (Fairbanks only)</td>
<td>1-3</td>
</tr>
<tr>
<td>ANS F458</td>
<td>The Politics of Indigenous Identity</td>
<td>3</td>
</tr>
<tr>
<td>ANS F360</td>
<td>Advanced Native Dance (Fairbanks only)</td>
<td>1</td>
</tr>
<tr>
<td>ANS F368</td>
<td>Intermediate Native Art Studio (Fairbanks only)</td>
<td>3</td>
</tr>
<tr>
<td>ANS F375</td>
<td>Native American Religion and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ANS F381</td>
<td>Indigenous World in Film</td>
<td>3</td>
</tr>
<tr>
<td>ANS F468</td>
<td>Advanced Native Art Studio (Fairbanks only)</td>
<td>3</td>
</tr>
<tr>
<td>ANS F475</td>
<td>Alaska Native Social Change</td>
<td>3</td>
</tr>
<tr>
<td>RD F425</td>
<td>Cultural Resource Issues</td>
<td>3</td>
</tr>
<tr>
<td>RD F492</td>
<td>Rural Development Seminar</td>
<td>1-3</td>
</tr>
</tbody>
</table>

ALASKA NATIVE PEOPLES: HEALTH, WELLNESS AND ENVIRONMENT

Prepares students to utilize traditional knowledge to promote healthy environments and communities. Useful to students on career tracks in health, environmental stewardship and wellness programs.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F112/RD F110</td>
<td>Alaska Native Claims Settlement Act: Land Claims in the 21st Century</td>
<td>1</td>
</tr>
<tr>
<td>ANS F111X</td>
<td>History of Colonization in Alaska: The Indigenous Response</td>
<td>3</td>
</tr>
</tbody>
</table>

1. May not be counted toward an Alaska Native studies major if used to fulfill general education requirements.
2. Students need to take the Legislative Seminar offering of RD F492, not the Cultural Resources Seminar, to count toward this concentration.
Minor, Alaska Native Studies

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS course at the F300 or F400 level</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ANS F401</td>
<td>Cultural Knowledge of Native Elders</td>
<td>3</td>
</tr>
<tr>
<td>Alaska Native Studies electives ¹</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

¹ All minor electives must be approved by the head of the Department of Alaska Native Studies and Rural Development.

B.A., B.S. Degrees

Minimum Requirements for Degrees: B.A.: 120 credits; B.S.: 120 credits

The Department of Anthropology offers a balanced and flexible program of academic courses and research in cultural anthropology, linguistic anthropology, archaeology and biological anthropology. Anthropology contributes to an understanding of the complex problems of human behavior, biology, language, cultural and social organization, and the relationship of humans to their environments. Research carried out in the field, laboratory and library emphasizes past and present modes of living and the origins and distribution of peoples and cultures throughout the world. Although special attention is given to the circumpolar North, faculty also maintain active research programs elsewhere, such as Africa and North America.

Degrees

- B.A., Anthropology (p. 162)
- B.S., Anthropology (p. 162)

Minor

- Minor, Anthropology (p. 163)

B.A., Anthropology

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td>General Education Requirements</td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td>As part of the general education requirements, complete:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH F100X or ANTH F101X</td>
<td>Individual, Society and Culture</td>
<td>3</td>
</tr>
<tr>
<td>B.A. Degree Requirements</td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
<td></td>
</tr>
<tr>
<td>Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH F211X or ANTH F221</td>
<td>Fundamentals of Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F215</td>
<td>Fundamentals of Biological Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH/LING F260</td>
<td>Language in Culture and Communication</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F384</td>
<td>History of Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F411</td>
<td>Senior Seminar in Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Complete six anthropology electives, at least four (12 credits) of which are at the F400 level</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

Note: LING F101X satisfies part of the B.A. humanities requirements.

B.S., Anthropology

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td>General Education Requirements</td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td>As part of the general education requirements, complete:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH F100X or ANTH F101X</td>
<td>Individual, Society and Culture</td>
<td>3</td>
</tr>
<tr>
<td>B.S. Degree Requirements</td>
<td>Complete the B.S. degree requirements. (p. 154)</td>
<td></td>
</tr>
<tr>
<td>Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH F211X</td>
<td>Fundamentals of Archaeology</td>
<td>3</td>
</tr>
</tbody>
</table>
ANTH F221  
Fundamentals of Biological Anthropology  
3

Complete one of the following:  
ANTH F215  
Fundamentals of Social/Cultural Anthropology  
ANTH F320  
Language and Culture in Alaska  
ANTH/LING F260  
Language in Culture and Communication  
ANTH F411  
Senior Seminar in Anthropology  
ANTH F214  
World Prehistory  
ANTH F405  
Archaeological Method and Theory  
ANTH F423  
Human Origins  
ANTH F424  
Analytical Techniques  
ANTH F309  
Circumpolar Archaeology  
or ANTH F315  
Human Variation  
ANTH F415  
Zooarchaeology and Taphonomy  
or ANTH F422  
Human Osteology

Complete at least two from the following electives:  
ANTH F426  
Bioarchaeology  
ANTH F428  
Ecological Anthropology and Regional Sustainability  
ANTH F492  
Seminar (Physical Anthropology)  
ANTH F492  
Seminar (Archaeology)  

Courses not selected between ANTH F309 or ANTH F315 and ANTH F415 or ANTH F422 may be used to meet this area.

Minor, Anthropology

Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ANTH F211X</td>
<td>Fundamentals of Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F215</td>
<td>Fundamentals of Social/Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F221</td>
<td>Fundamentals of Biological Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH/LING F260</td>
<td>Language in Culture and Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Anthropology electives 6

Applied Arts and Sciences

Office of Interdisciplinary Programs  
907-474-7716

B.A.A.S. Degree

Minimum Requirements for Degree: 120 credits

The Bachelor of Applied Arts and Sciences is designed for students who have completed an Associate of Applied Science degree and who desire to enhance their knowledge, analytical abilities and critical thinking skills for upward mobility in the field.

The interdisciplinary studies B.A.A.S. degree allows exceptional students to tailor a bachelor’s degree program to their unique needs.

Degree

- B.A.A.S., Applied Arts and Sciences (p. 163)

B.A.A.S., Applied Arts and Sciences

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| General University Requirements  
Complete the general university requirements. (p. 142)  
| General Education Requirements  
Complete the general education requirements. (p. 145)  
| B.A.A.S. Degree and Program Requirements  
Complete the B.A.A.S. degree requirements. (p. 147)  
| ENGL F314 | Technical Writing  | 3      |

Interdisciplinary studies  
Complete an Associate of Applied Science degree from an accredited institution of higher education.

Capstone Requirement

Complete baccalaureate capstone requirement as determined by the program.

Approved by an advisory committee of at least three faculty members.

Note: At least 39 credits must be F300 level or above.

See Interdisciplinary Studies (p. 220).

Applied Management

School of Management  
907-474-7461  
http://www.uaf.edu/som/

B.A.M. Degree

Minimum Requirements for Degree: 120 credits

The Bachelor of Applied Management (B.A.M.) online degree is designed for individuals who have completed 21-30 credit hours in an area of specialization or trade and aspire to assume middle management-level positions in their chosen field.

Applied management majors are desired in nearly every industry including, for example, aviation, automotive technology, hospitality and the growing field of healthcare. This desirability provides a unique opportunity as only a limited number of applied management bachelor degrees exist and many of those are located in for-profit institutions.

The online Bachelor of Applied Management degree provides students with the academic education required to be proficient middle managers in their career fields. It offers students with degrees and certificates, not usually designed to fulfill the requirements within a bachelors program, the opportunity to use their skills and degrees/certificates for academic and career growth.
Degree

- B.A.M., Applied Management (p. 164)

**B.A.M., Applied Management**

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
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<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
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</tr>
<tr>
<td>MATH F122X</td>
<td>Essential Precalculus with Applications</td>
<td>3</td>
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<tr>
<td></td>
<td>B.A.M. Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the B.A.M. degree requirements. (p. 149)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete 21-30 credit hours in a single specialized technical area or trade</td>
<td>21-30</td>
</tr>
<tr>
<td>AIS F101</td>
<td>Effective Personal Computer Use</td>
<td>1</td>
</tr>
<tr>
<td>AIS F310</td>
<td>Management of Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>or AIS F316</td>
<td>Accounting Information Systems</td>
<td></td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F308</td>
<td>Professional Development: How to Prepare for a Job and Other Survival Skills</td>
<td>1</td>
</tr>
<tr>
<td>BA F309</td>
<td>Professional Development: Finding a Career</td>
<td>1</td>
</tr>
<tr>
<td>BA F330</td>
<td>The Legal Environment of Business</td>
<td>4</td>
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<tr>
<td>BA F343</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BA F490</td>
<td>Services Marketing</td>
<td>3</td>
</tr>
<tr>
<td>or BA F360</td>
<td>Operations Management</td>
<td></td>
</tr>
<tr>
<td>BAM F320</td>
<td>Management</td>
<td>3</td>
</tr>
<tr>
<td>BAM F352</td>
<td>Accounting and Finance</td>
<td>3</td>
</tr>
<tr>
<td>BAM F462</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>ECON F227</td>
<td>Introductory Statistics for Economics and Business</td>
<td>3</td>
</tr>
<tr>
<td>or STAT F200X</td>
<td>Elementary Statistics</td>
<td></td>
</tr>
<tr>
<td>HSEM F416</td>
<td>Cybersecurity Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F445</td>
<td>Business Continuity and Crisis Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Complete free electives as needed to meet 120 credits.

**Earn 39 credit hours at the 300 or 400 level**

**Arctic and Northern Studies**

College of Liberal Arts
907-474-7126
http://www.uaf.edu/arctic/

**B.A. Degree**

Minimum Requirements for Degree: 120 credits

The Arctic and Northern studies program offers an interdisciplinary study of Northern problems and policy issues. The purpose of the Arctic and Northern studies program is to give interested students a broader study of the northern region — its environment, peoples and problems.

The geographic location of UAF is outstanding for the study of Arctic and Northern issues. Students examine the countries and regions throughout the circumpolar North and their distinctive problems, such as the survival of indigenous populations, environmental and wilderness issues, high rates of alcoholism and suicide, fragile environments, adaptation to extreme cold and cycles of light and darkness, and adult development in small frontier societies.

The Arctic and Northern studies curriculum is centered around an interdisciplinary course (ACNS F484), which is taken in the senior year.

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in Russia and the Commonwealth of Independent States, see Exchange Programs and Study Abroad Programs (p. 81).

Degree

- B.A., Arctic and Northern Studies (p. 164)

**Minor**

- Minor, Arctic and Northern Studies (p. 165)

**B.A., Arctic and Northern Studies**

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F104X</td>
<td>Natural History of Alaska</td>
<td>4</td>
</tr>
<tr>
<td>GEOG F427</td>
<td>Polar Geography</td>
<td>3</td>
</tr>
<tr>
<td>HIST F483</td>
<td>20th-century Circumpolar History</td>
<td>3</td>
</tr>
<tr>
<td>ACNS F201</td>
<td>The Circumpolar North: An Introductory Overview</td>
<td>3</td>
</tr>
<tr>
<td>ACNS F484</td>
<td>Seminar in Northern Studies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td></td>
</tr>
<tr>
<td>ENGL/ANS F349</td>
<td>Narrative Art of Alaska Native Peoples (in English translation)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F449</td>
<td>Northern and Environmental Literature</td>
<td></td>
</tr>
<tr>
<td>ACNS/ART F425</td>
<td>Visual Images of the North</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td></td>
</tr>
<tr>
<td>PS F263</td>
<td>Alaska Native Politics</td>
<td></td>
</tr>
<tr>
<td>PS F462</td>
<td>Alaska Government and Politics</td>
<td></td>
</tr>
<tr>
<td>PS F460</td>
<td>Government and Politics of Canada</td>
<td></td>
</tr>
<tr>
<td>PS F468</td>
<td>Government and Politics of Russia</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**
Complete 15 credits from two of the following groups:  \(^2\)  

**Anthropology**  
ANTH F302 Siberia: Past, Present, Future  
ANTH F309 Circumpolar Archaeology  
ANTH F320 Language and Culture in Alaska  
ANTH F383 Athabaskan Peoples of Alaska and Adjacent Canada  
ANTH F472 Culture and History in the North Atlantic  

**Geography**  
GEOG F302 Geography of Alaska  
GEOG F303 Geography of the United States and Canada  
GEOG F306 Geography of Russia  

**History**  
HIST F404 Modern Scandinavia  
HIST F461 History of Alaska  
HIST F463 Imperial Russia, 1700-1917  
HIST F464 Soviet and Post-Soviet Russia  
HIST F481 Polar Exploration and Its Literature  

**Political Science**  
PS/ANS F325 Native Self-government  
PS/ANS F450 Comparative Indigenous Rights and Policies  
PS F452 International Relations of the North  
PS F454 International Law and the Environment  
PS F460 Government and Politics of Canada  
PS F468 Government and Politics of Russia  

**Humanities**  \(^3\)  
ANS/ART F365 Native Art of Alaska  
ANS/ENGL F349 Narrative Art of Alaska Native Peoples (in English translation)  
ENGL F449 Northern and Environmental Literature  

**Northern language**  \(^4\)  

---

1. Fulfills the baccalaureate capstone requirement.  
2. Students may not double-count these major requirements to fulfill a minor.  
3. Students may not double-count the fulfillment of the humanities of government requirements in major requirements section with government or humanities courses in electives section.  
4. Two semesters of a Northern language, such as Eskimo or Russian. By choosing the Northern language option you may have to take additional upper-division credits to meet the minimum general university requirement of 39 upper-division credits.

### Art

**College of Liberal Arts**  
**Department of Art**  
907-474-7530  
http://www.uaf.edu/art/

## B.A., B.F.A. Degrees

Minimum Requirements for Degrees: B.A.: 120 credits; B.F.A.: 120 credits  

The art program encourages independent, original and creative thinking while recognizing the role and responsibility of the fine arts within the humanities.  

The B.F.A. degree is professionally oriented and designed to prepare students for careers in art. It is the usual prerequisite for graduate studies in art. Admission requires a portfolio review by the art faculty, generally done in the student’s junior year. Enrollment in the B.F.A. program is recommended only for students who are willing to make
the considerable commitment of time and energy necessary to achieve professional competence in their major areas. Career opportunities for B.F.A. graduates include artist, designer, arts administrator, art teacher, gallery and museum administrator, and computer-related fields.

### Degrees

- B.A., Art (p. 166)
- B.F.A., Art (p. 166)

### Minor

- Minor, Art (p. 167)
- Minor, Art History (p. 167)

### B.A., Art

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
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<td></td>
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<td></td>
</tr>
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</tr>
<tr>
<td></td>
<td>B.A. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>ART F105</td>
<td>Beginning Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART F261X</td>
<td>History of World Art</td>
<td>6</td>
</tr>
<tr>
<td>ART F262X</td>
<td>History of World Art</td>
<td></td>
</tr>
<tr>
<td>ART F489</td>
<td>Bachelor of Arts Capstone</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Complete two from the following:</td>
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</tr>
<tr>
<td>ART F161</td>
<td>Two-dimensional Digital Design</td>
<td></td>
</tr>
<tr>
<td>ART F162</td>
<td>Color and Design</td>
<td></td>
</tr>
<tr>
<td>ART F163</td>
<td>Three-dimensional Design</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>Complete three from the following electives (at least one must be a two-dimensional area, and one must be a three-dimensional area):</td>
<td>9</td>
</tr>
<tr>
<td>ART F205</td>
<td>Intermediate Drawing</td>
<td></td>
</tr>
<tr>
<td>ART F207</td>
<td>Beginning Printmaking</td>
<td></td>
</tr>
<tr>
<td>ART F213</td>
<td>Beginning Painting (Acrylic or Oil)</td>
<td></td>
</tr>
<tr>
<td>ART F271</td>
<td>Beginning Computer Art</td>
<td></td>
</tr>
<tr>
<td>ART F283</td>
<td>Basic Darkroom Photography</td>
<td></td>
</tr>
<tr>
<td>or ART F284</td>
<td>Basic Digital Photography</td>
<td></td>
</tr>
<tr>
<td>Three-dimensional Areas</td>
<td>Complete three upper-division courses from one of these areas:</td>
<td>9</td>
</tr>
<tr>
<td>ART F201</td>
<td>Beginning Ceramics</td>
<td></td>
</tr>
<tr>
<td>ART F209</td>
<td>Beginning Metalsmithing and Jewelry</td>
<td></td>
</tr>
<tr>
<td>ART F211</td>
<td>Beginning Sculpture</td>
<td></td>
</tr>
<tr>
<td>ART F268</td>
<td>Beginning Native Art Studio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete three upper-division courses from one of these areas:</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete one of the following upper-division art history courses:</td>
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</tr>
<tr>
<td>ART F363</td>
<td>History of Modern Art</td>
<td>3</td>
</tr>
<tr>
<td>ART F364</td>
<td>Italian Renaissance Art</td>
<td></td>
</tr>
<tr>
<td>ART F365</td>
<td>Native Art of Alaska</td>
<td></td>
</tr>
<tr>
<td>ART F425</td>
<td>Visual Images of the North</td>
<td></td>
</tr>
<tr>
<td>ART F463</td>
<td>Seminar in Art History</td>
<td></td>
</tr>
<tr>
<td>ART F490</td>
<td>Current Problems</td>
<td></td>
</tr>
</tbody>
</table>

1 Fulfills the baccalaureate capstone requirement.

**Note:** Transfer students who are candidates for the B.A. degree in art must complete a minimum of 12 credits in art while in residence.

**Note:** In addition to the program (major) requirements above, B.A. students will need additional upper-division credit (e.g., from the social science/humanities requirements and the minor) to equal 39 upper-division credits total.

### B.F.A., Art

**Concentrations:** Ceramics, Computer Art, Drawing, Metalsmithing, Native Studio Art, Painting, Photography, Printmaking, Sculpture

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
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<tr>
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<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
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<tr>
<td></td>
<td>B.F.A. Degree Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the B.F.A. degree requirements. (p. 150)</td>
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</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>ART F105</td>
<td>Beginning Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART F261X</td>
<td>History of World Art</td>
<td>6</td>
</tr>
<tr>
<td>ART F262X</td>
<td>History of World Art</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete two from the following:</td>
<td>6</td>
</tr>
<tr>
<td>ART F161</td>
<td>Two-dimensional Digital Design</td>
<td></td>
</tr>
<tr>
<td>ART F162</td>
<td>Color and Design</td>
<td></td>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>ART F207</td>
<td>Beginning Printmaking</td>
<td></td>
</tr>
<tr>
<td>ART F213</td>
<td>Beginning Painting (Acrylic or Oil)</td>
<td></td>
</tr>
<tr>
<td>ART F271</td>
<td>Beginning Computer Art</td>
<td></td>
</tr>
<tr>
<td>ART F283</td>
<td>Basic Darkroom Photography</td>
<td></td>
</tr>
<tr>
<td>or ART F284</td>
<td>Basic Digital Photography</td>
<td></td>
</tr>
<tr>
<td>Three-dimensional Areas</td>
<td>Complete three upper-division courses from one of these areas:</td>
<td>9</td>
</tr>
<tr>
<td>ART F201</td>
<td>Beginning Ceramics</td>
<td></td>
</tr>
<tr>
<td>ART F209</td>
<td>Beginning Metalsmithing and Jewelry</td>
<td></td>
</tr>
<tr>
<td>ART F211</td>
<td>Beginning Sculpture</td>
<td></td>
</tr>
<tr>
<td>ART F268</td>
<td>Beginning Native Art Studio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete three upper-division courses from one of these areas:</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td></td>
<td>Complete one of the following upper-division art history courses:</td>
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<tr>
<td>ART F363</td>
<td>History of Modern Art</td>
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<tr>
<td>ART F364</td>
<td>Italian Renaissance Art</td>
<td></td>
</tr>
<tr>
<td>ART F365</td>
<td>Native Art of Alaska</td>
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</tr>
<tr>
<td>ART F425</td>
<td>Visual Images of the North</td>
<td></td>
</tr>
<tr>
<td>ART F463</td>
<td>Seminar in Art History</td>
<td></td>
</tr>
<tr>
<td>ART F490</td>
<td>Current Problems</td>
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</tbody>
</table>

1 Fulfills the baccalaureate capstone requirement.
ART F271 Beginning Computer Art
ART F283 Basic Darkroom Photography or ART F284 Basic Digital Photography

Three-dimensional Areas
ART F201 Beginning Ceramics
ART F209 Beginning Metalsmithing and Jewelry
ART F211 Beginning Sculpture
ART F268 Beginning Native Art Studio

Major program approved by B.F.A. thesis committee

Complete three from the following upper division art history courses:
ART F363 History of Modern Art
ART F364 Italian Renaissance Art
ART F365 Native Art of Alaska
ART F425 Visual Images of the North
ART F463 Seminar in Art History
ART F490 Current Problems

Upper-division art electives

Complete the baccalaureate capstone requirement as determined by the program.

Note: A minor is not required for this degree.

Note: Transfer students who are candidates for the B.F.A. in art must complete a minimum of 15 credits in art while in residence.

Minor, Art

Minimum Requirements for Minor: 18 credits
Students must earn a C- grade or better in each course.

<table>
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<tbody>
<tr>
<td>ART F105</td>
<td>Beginning Drawing</td>
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</table>

Complete the following:
ART F261X History of World Art 3

Complete one of the following:
ART F161 Two-dimensional Digital Design
ART F162 Color and Design
ART F163 Three-dimensional Design

Art Electives 9

Note: A minor in art is only available to non-art majors.

Minor, Art History

Minimum Requirements for Minor: 15 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
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<tr>
<td>ART F261X</td>
<td>History of World Art</td>
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<tr>
<td>ART F262X</td>
<td>History of World Art</td>
<td>3</td>
</tr>
<tr>
<td>ART F463</td>
<td>Seminar in Art History</td>
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</tr>
</tbody>
</table>

Complete two from the following:
ART F363 History of Modern Art
ART F364 Italian Renaissance Art
ART F365 Native Art of Alaska

Asian Studies

College of Liberal Arts
907-474-6507
http://www.uaf.edu/asianstudies/

Minor Only

A minor in Asian studies provides interdisciplinary instruction in the varieties of Asian languages and cultures. It enables students to consolidate various course offerings into a meaningful and cohesive program relevant to several major fields of specialization. (Combining a Japanese studies major with an Asian studies minor requires approval from both programs.)

Minor

• Minor, Asian Studies (p. 167)

Minor, Asian Studies

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
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<td>Anthropology</td>
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<td>ANTH F302</td>
<td>Siberia: Past, Present, Future</td>
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<td>Foreign Languages</td>
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<td>CHNS F101X</td>
<td>Elementary Chinese I</td>
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<tr>
<td>CHNS F102X</td>
<td>Elementary Chinese II</td>
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<tr>
<td>CHNS F201</td>
<td>Intermediate Chinese I</td>
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</tr>
<tr>
<td>CHNS F202</td>
<td>Intermediate Chinese II</td>
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<tr>
<td>JPN F101X</td>
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<tr>
<td>JPN F102X</td>
<td>Elementary Japanese II</td>
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<tr>
<td>JPN F201</td>
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<tr>
<td>JPN F202</td>
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<td>GEOG F311</td>
<td>Geography of Asia</td>
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<td>History</td>
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<td>HIST F121</td>
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<tr>
<td>HIST F122X</td>
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<tr>
<td>HIST F330</td>
<td>Modern China</td>
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<tr>
<td>HIST F331</td>
<td>Modern Japan</td>
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</table>
information about the capstone requirement is posted on the Biology and Wildlife website (http://www.bw.uaf.edu). Students are strongly encouraged to speak to a biology advisor well before their senior year about how they plan to satisfy the capstone requirement.

**Degrees**
- B.A., Biological Sciences (p. 168)
- B.S., Biological Sciences (without concentration) (p. 172)
- B.S., Biological Sciences (with concentration) (p. 170)

**Minor**
- Minor, Biological Sciences (p. 174)

**B.A., Biological Sciences**

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<td><strong>General University Requirements</strong></td>
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<tr>
<td></td>
<td>Complete the general university requirements.</td>
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<tr>
<td></td>
<td>(p. 142)</td>
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<td></td>
<td><strong>General Education Requirements</strong></td>
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<td></td>
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<tr>
<td></td>
<td>(p. 145)</td>
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<td>As part of the general education requirements, complete:</td>
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<tr>
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<td>CHEM F105X</td>
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<td>CHEM F106X</td>
<td>General Chemistry II</td>
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<td></td>
<td><strong>B.A. Degree Requirements</strong></td>
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<td></td>
<td>Complete the B.A. degree requirements.</td>
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<tr>
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<td>(p. 150)</td>
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<td>As part of the B.A. degree requirements, complete:</td>
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<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
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<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
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<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
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<tr>
<td>BIOL F260</td>
<td>Principles of Genetics</td>
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<tr>
<td>BIOL F481</td>
<td>Principles of Evolution</td>
<td>4</td>
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<td>CHEM F321</td>
<td>Organic Chemistry I</td>
<td>4</td>
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<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
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<tr>
<td>or CS F103</td>
<td>Introduction to Computer Programming</td>
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<tr>
<td>or CS F201</td>
<td>Computer Science I</td>
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<tr>
<td></td>
<td><strong>Biology Breadth Requirements</strong></td>
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<tr>
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<td>Complete two from the following:</td>
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<tr>
<td></td>
<td>7-12</td>
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<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>or BIOL F111X or BIOL F112X</td>
<td>Human Anatomy and Physiology I or Human Anatomy and Physiology II</td>
<td></td>
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<tr>
<td>or BIOL F342</td>
<td>Microbiology</td>
<td></td>
</tr>
<tr>
<td>or BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
<td></td>
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<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
<td></td>
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<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
<td></td>
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<tr>
<td></td>
<td><strong>Electives</strong></td>
<td>9-12</td>
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<tr>
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<td>Complete three courses from the following:</td>
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<tr>
<td></td>
<td>9-12</td>
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<td></td>
<td>Elective Course Lists A, B, C, D, or E</td>
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<tr>
<td></td>
<td><strong>Capstone</strong></td>
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<tr>
<td>BIOL F400</td>
<td>Capstone Project</td>
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</table>
Satisfactory completion of a capstone research project which can be done either working individually with a faculty member or within one of the following courses: 5,6

BIOL F434  Structure and Function of Vascular Plants
BIOL F441  Animal Behavior
BIOL F466  Advanced Cell and Molecular Laboratory
BIOL F472  Community Ecology
BIOL F473  Limnology
BIOL F491  The Human Microbiome

1  As part of the humanities and social science requirement, take at least 9 credits of upper-division course work. As part of the minor, at least 3 credits of upper-division course work are recommended.
2  Because biology breadth courses for the B.A. degree serve as prerequisites for many upper-division biology electives, course choices should be made with consideration of the elective biology courses the student plans to complete.
3  BIOL F397, BIOL F497, BIOL F490, URSA F388 or URSA F488 courses may be substituted by petition for a maximum of two required elective courses in biology (3-4 credits of independent study or research per substituted course). The subject area of the independent study or research will determine which biological subject areas the credits satisfy.
4  Fulfills the baccalaureate capstone requirement.
5  Students working individually with a faculty member may, for example, take BIOL F490, BIOL F497 or do so without course credits.
6  Capstone courses may be double counted as electives.

Note:  A foreign language is encouraged by the department in meeting requirements of the core curriculum.

Biology Elective Course Lists
Courses that satisfy upper-division elective credit may require prerequisites.

LIST A - CELL AND MOLECULAR BIOLOGY

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<td>Microbiology</td>
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<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F417</td>
<td>Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F435</td>
<td>Introduction to Biology of Cancer</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F460</td>
<td>Principles of Virology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F462</td>
<td>Infectious Diseases</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F465</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F466</td>
<td>Advanced Cell and Molecular Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F491</td>
<td>The Human Microbiome</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F325</td>
<td>Organic Chemistry II</td>
<td>4</td>
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<tr>
<td>CHEM F351</td>
<td>General Biochemistry: Metabolism</td>
<td>3</td>
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<tr>
<td>CHEM F450</td>
<td>Information Storage and Transfer: Molecules and Pathways</td>
<td>3</td>
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<td>CHEM F470</td>
<td>Cellular and Molecular Neuroscience</td>
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<td>CHEM F474</td>
<td>Neurochemistry</td>
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LIST B - PHYSIOLOGY

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<td>Animal Physiology</td>
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<tr>
<td>BIOL F312</td>
<td>Medical Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F335</td>
<td>Principles of Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
<td>4</td>
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<tr>
<td>BIOL F412</td>
<td>Exercise Physiology</td>
<td>3</td>
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<tr>
<td>BIOL F417</td>
<td>Neurobiology</td>
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<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
<td>4</td>
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<tr>
<td>BIOL F441</td>
<td>Animal Behavior</td>
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<tr>
<td>BIOL F455</td>
<td>Environmental Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F457</td>
<td>Environmental Microbiology</td>
<td>3</td>
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<tr>
<td>BIOL F462</td>
<td>Infectious Diseases</td>
<td>3</td>
</tr>
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<td>BIOL F465</td>
<td>Immunology</td>
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LIST C - ECOLOGY AND EVOLUTIONARY BIOLOGY

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<td>BIOL F371</td>
<td>Principles of Ecology</td>
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<tr>
<td>BIOL F418</td>
<td>Biogeography</td>
<td>3</td>
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<tr>
<td>BIOL F433</td>
<td>Conservation Genetics</td>
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<td>BIOL F441</td>
<td>Animal Behavior</td>
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<tr>
<td>BIOL F457</td>
<td>Environmental Microbiology</td>
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<tr>
<td>BIOL F469</td>
<td>Landscape Ecology and Wildlife Habitat</td>
<td>3</td>
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<td>BIOL F471</td>
<td>Population Ecology</td>
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<tr>
<td>BIOL F472</td>
<td>Community Ecology</td>
<td>3</td>
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<tr>
<td>BIOL F473</td>
<td>Limnology</td>
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<tr>
<td>BIOL F476</td>
<td>Ecosystem Ecology</td>
<td>3</td>
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<td>BIOL F483</td>
<td>Stream Ecology</td>
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<td>BIOL F485</td>
<td>Global Change Biology</td>
<td>3</td>
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<tr>
<td>BIOL F486</td>
<td>Vertebrate Paleontology</td>
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<tr>
<td>BIOL F487</td>
<td>Conceptual Issues in Evolutionary Biology</td>
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<tr>
<td>BIOL F488</td>
<td>Arctic Vegetation Ecology; Geobotany</td>
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<tr>
<td>BIOL F489</td>
<td>Vegetation Description and Analysis</td>
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<td>WLF F301</td>
<td>Design of Wildlife Studies</td>
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<td>WLF F421</td>
<td>Ecology and Management of Large Mammals</td>
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LIST D - ORGANISMAL BIOLOGY

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<td>Introduction to Plant Biology</td>
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<td>BIOL F305</td>
<td>Invertebrate Zoology</td>
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<tr>
<td>BIOL F331</td>
<td>Systematic Botany</td>
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<tr>
<td>BIOL F406</td>
<td>Entomology</td>
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<tr>
<td>BIOL F418</td>
<td>Biogeography</td>
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<td>BIOL F425</td>
<td>Mammalogy</td>
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<td>BIOL F426</td>
<td>Ornithology</td>
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<td>BIOL F427</td>
<td>Ichthyology</td>
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<td>BIOL F486</td>
<td>Vertebrate Paleontology</td>
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<td>BIOL F489</td>
<td>Vegetation Description and Analysis</td>
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LIST E - BIOMEDICAL SCIENCE

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<td>Principles of Epidemiology</td>
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<td>BIOL F401</td>
<td>Fundamentals of Pharmacology</td>
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<td>Biomedical and Research Ethics</td>
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<td>BIOL F412</td>
<td>Exercise Physiology</td>
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<td>BIOL F417</td>
<td>Neurobiology</td>
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<tr>
<td>BIOL F435</td>
<td>Introduction to Biology of Cancer</td>
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<td>BIOL F460</td>
<td>Principles of Virology</td>
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</tr>
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<td>BIOL F462</td>
<td>Infectious Diseases</td>
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<tr>
<td>BIOL F465</td>
<td>Immunology</td>
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<td>Advanced Cell and Molecular Laboratory</td>
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<tr>
<td>BIOL F491</td>
<td>The Human Microbiome</td>
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<td>WLF F305</td>
<td>Wildlife Diseases</td>
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<td>Information Storage and Transfer: Molecules and Pathways</td>
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<td>CHEM F474</td>
<td>Neurochemistry</td>
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</table>

B.S., Biological Sciences with Concentration

Concentrations: Cell and Molecular Biology, Physiology, Ecology and Evolutionary Biology, and Biomedical Science

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

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<tr>
<td>and CHEM F106X</td>
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<td>MATH F230X</td>
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<td>or MATH F251X Calculus I</td>
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<td>Complete one from the following four options: 4-8</td>
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<tr>
<td>and BIOL F112X</td>
<td>Human Anatomy and Physiology II</td>
<td></td>
</tr>
<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
<td></td>
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<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
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<tr>
<td>BIOL F481</td>
<td>Principles of Evolution</td>
<td>4</td>
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<tr>
<td>CHEM F321</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F325</td>
<td>Organic Chemistry II</td>
<td>3-4</td>
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<tr>
<td>or CHEM F351</td>
<td>General Biochemistry: Metabolism</td>
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<td>PHYS F103X</td>
<td>College Physics I</td>
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<td>or PHYS F211X</td>
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<tr>
<td>or PHYS F212X</td>
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<tr>
<td>or CS F103</td>
<td>Introduction to Computer Programming</td>
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<tr>
<td>or CS F201</td>
<td>Computer Science I</td>
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</table>

Concentration

Complete one from the following concentrations: 1

Cell and Molecular Biology

Physiology

Ecology and Evolutionary Biology

Biomedical Science

Capstone 2

BIOL F400 Capstone Project 0

Satisfactory completion of a capstone research project which can be done either working individually with a faculty member or within one of the following courses: 3, 4

BIOL F434 Structure and Function of Vascular Plants

BIOL F441 Animal Behavior

BIOL F466 Advanced Cell and Molecular Laboratory

BIOL F472 Community Ecology

BIOL F473 Limnology

BIOL F491 The Human Microbiome

1 BIOL F397, BIOL F497, BIOL F490, URSA F388 or URSA F488 courses may be substituted by petition for a maximum of two required elective courses in biology (3-4 credits of independent study or research per substituted course). The subject area of the independent study or research will determine which biological subject areas the credits satisfy.

2 Fulfills the baccalaureate capstone requirement.

3 Students working individually with a faculty member may, for example, take BIOL F490, BIOL F497 or do so without course credits.

4 Capstone courses may be double counted as electives.

Note: A foreign language is encouraged by the department to meet the general education requirements.

Concentrations

CELL AND MOLECULAR BIOLOGY

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<td>BIOL F360</td>
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### PHYSIOLOGY

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**Physiology or Cell and Molecular Biology Electives**

- Complete two additional courses from list B: 6-8
- Complete two additional courses from lists A or B: 6-8

**Biology Breadth Elective**

- Complete one additional course from lists C or D: 3-4

**Biology Elective**

- Complete one additional course from lists A, B, C, D, or E: 3-4

### ECOLOGY AND EVOLUTIONARY BIOLOGY

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
<td>4</td>
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</tbody>
</table>

**Ecology and Evolutionary Biology Electives**

- Complete two additional courses from list C: 6-8

**Organismal Elective**

- Complete one additional course from list D: 3-4

**Biology Breadth Elective**

- Complete one additional course from lists A, B, or E: 3-4

**Biology Elective**

- Complete one additional course from lists A, B, C, D, or E: 3-4

- STAT F401 Regression and Analysis of Variance: 3-4
- or STAT F402 Scientific Sampling: 3-4

### BIOMEDICAL SCIENCE

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<tr>
<td>or ECON F201X Principles of Economics I: Microeconomics</td>
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<tr>
<td>or ECON F202X Principles of Economics II: Macroeconomics</td>
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<td>PSY F101X</td>
<td>Introduction to Psychology</td>
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<td>SOC F101X</td>
<td>Introduction to Sociology</td>
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**Complete the following as part of the program requirements:**

- BIOL F111X Human Anatomy and Physiology I
- and BIOL F112X Human Anatomy and Physiology II
- or BIOL F310 Animal Physiology
- CHEM F325 Organic Chemistry II
- PHYS F104X College Physics II
- or PHYS F212X General Physics II

- Complete the following:
### B.S., Biological Sciences without Concentration

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

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<tr>
<th>Code</th>
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<td>BIOL F239</td>
<td>Introduction to Plant Biology</td>
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<td>BIOL F305</td>
<td>Invertebrate Zoology</td>
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<tr>
<td>BIOL F331</td>
<td>Systematic Botany</td>
<td>3</td>
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<tr>
<td>BIOL F406</td>
<td>Entomology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F418</td>
<td>Biogeography</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F425</td>
<td>Mammalogy</td>
<td>3</td>
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<tr>
<td>BIOL F426</td>
<td>Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F427</td>
<td>Ichthyology</td>
<td>4</td>
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<tr>
<td>BIOL F486</td>
<td>Vertebrate Paleontology</td>
<td>3</td>
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<tr>
<td>BIOL F489</td>
<td>Vegetation Description and Analysis</td>
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**LIST D - ORGANISMAL BIOLOGY**

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<td>BIOL F260</td>
<td>Principles of Genetics</td>
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<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
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<td>BIOL F371</td>
<td>Principles of Ecology</td>
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<td>BIOL F112X</td>
<td>Human Anatomy and Physiology II</td>
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<td>Microbiology</td>
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<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
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<td>BIOL F481</td>
<td>Principles of Evolution</td>
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<td>CHEM F321</td>
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<td>CHEM F325</td>
<td>Organic Chemistry II</td>
<td>3-4</td>
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<td>CHEM F351</td>
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<tr>
<td>PHYS F103X</td>
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<td>PHYS F104X</td>
<td>College Physics II</td>
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<td>CS F103</td>
<td>Introduction to Computer Programming</td>
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**LIST E - BIOMEDICAL SCIENCE**

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<tr>
<td>BIOL F489</td>
<td>Vegetation Description and Analysis</td>
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</table>

**Electives**

Complete one additional course from the following:

- List D

**Organisal elective**

Complete four additional courses at the 200 level or above, at least three of which must be from the following:

- Lists A, B, C, D, or E

**Capstone**
Satisfactory completion of a capstone research project, which can be done either working individually with a faculty member or within one of the following courses: ² ³ ⁴

- BIOL F434: Structure and Function of Vascular Plants
- BIOL F441: Animal Behavior
- BIOL F466: Advanced Cell and Molecular Laboratory
- BIOL F472: Community Ecology
- BIOL F473: Limnology
- BIOL F491: The Human Microbiome

¹ BIOL F397, BIOL F497, BIOL F490, URSA F388 or URSA F488 courses may be substituted by petition for a maximum of two required elective courses in biology (3-4 credits of independent study or research per substituted course). The subject area of the independent study or research will determine which biological subject areas the credits satisfy.

² Fulfills the baccalaureate capstone requirement.

³ Students working individually with a faculty member may, for example, take BIOL F490, BIOL F497 or do so without course credits.

⁴ Capstone courses may be double counted as electives.

Note: A foreign language is encouraged by the department in meeting requirements of the general education requirements.

### Biology Elective Course Lists

Courses that satisfy upper-division elective credit may require prerequisites.

**LIST A - CELL AND MOLECULAR BIOLOGY**

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<td>Introduction to Biology of Cancer</td>
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<td>Principles of Virology</td>
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<td>Infectious Diseases</td>
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<td>BIOL F465</td>
<td>Immunology</td>
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<td>Advanced Cell and Molecular Laboratory</td>
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<td>BIOL F491</td>
<td>The Human Microbiome</td>
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<td>CHEM F325</td>
<td>Organic Chemistry II</td>
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<td>CHEM F450</td>
<td>Information Storage and Transfer : Molecules and Pathways</td>
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<tr>
<td>CHEM F470</td>
<td>Cellular and Molecular Neuroscience</td>
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**LIST B - PHYSIOLOGY**

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<td>Principles of Epidemiology</td>
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**LIST C - ECOLOGY AND EVOLUTIONARY BIOLOGY**

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<td>BIOL F441</td>
<td>Animal Behavior</td>
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<td>BIOL F457</td>
<td>Environmental Microbiology</td>
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<td>BIOL F469</td>
<td>Landscape Ecology and Wildlife Habitat</td>
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<td>Population Ecology</td>
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<td>WLF F421</td>
<td>Ecology and Management of Large Mammals</td>
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**LIST D - ORGANISMAL BIOLOGY**

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<td>Invertebrate Zoology</td>
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<td>Systematic Botany</td>
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<td>Entomology</td>
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<td>BIOL F418</td>
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<tr>
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**LIST E - BIOMEDICAL SCIENCE**

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<td>Principles of Epidemiology</td>
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<td>BIOL F401</td>
<td>Fundamentals of Pharmacology</td>
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<td>Biomedical and Research Ethics</td>
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<tr>
<td>BIOL F412</td>
<td>Exercise Physiology</td>
<td>3</td>
</tr>
</tbody>
</table>
and enables them to apply imaginative and responsible leadership to the needs of industry and government.

The undergraduate and graduate business administration programs are accredited by the Association to Advance Collegiate Schools of Business.

**Degree**
- B.B.A., Business Administration (p. 174)

**Minors**
- Minor, Finance (p. 175)
- Minor, General Business (p. 175)
- Minor, Management and Organizations (p. 175)
- Minor, Marketing (p. 175)
- Minor, Sport Management (p. 176)

**B.B.A., Business Administration**

Concentrations: Finance, General Business, Marketing, Sport Management, Leadership

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F260</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F111X and BIOL F112X</td>
<td>Human Anatomy and Physiology I and Human Anatomy and Physiology II</td>
<td>3-8</td>
</tr>
<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
<td></td>
</tr>
<tr>
<td>BIOL F481</td>
<td>Principles of Evolution</td>
<td></td>
</tr>
<tr>
<td>Complete one additional course in biology at the 200 level or above</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

1 Courses that satisfy upper-division elective credit may require prerequisites in addition to the required biology course.

---

**Business Administration**

School of Management
Department of Business Administration
907-474-7461
http://www.uaf.edu/som/degrees/undergraduate/ba/

**B.B.A. Degree**

Minimum Requirements for Degree: 120 credits

The business administration program offers professional education to students interested in marketing, leadership, finance and sport management.

Competent management practices require an education that is both broad and deep. The business administration program prepares graduates to meet complex technical, economic and social problems
As part of the B.B.A. degree requirements, BA F462 fulfills the baccalaureate capstone requirement.

### Concentrations

#### FINANCE

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F423</td>
<td>Investment Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BA F424</td>
<td>Real Estate and Alternative Investments</td>
<td>3</td>
</tr>
<tr>
<td>BA F454</td>
<td>Student Investment Fund</td>
<td>3</td>
</tr>
<tr>
<td>BA F455</td>
<td>Portfolio Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F461</td>
<td>International Finance</td>
<td>3</td>
</tr>
</tbody>
</table>

#### GENERAL BUSINESS

Complete three School of Management courses approved by the undergraduate director.

- At least two must be BA courses
- At least 6 credits must be upper-division

#### MARKETING

Complete three School of Management courses approved by the undergraduate director.

- At least two must be BA courses
- At least 6 credits must be upper-division

#### SPORT MANAGEMENT

Complete three School of Management courses approved by the undergraduate director.

- At least two must be BA courses
- At least 6 credits must be upper-division

#### LEADERSHIP

Complete three School of Management courses approved by the undergraduate director.

- At least two must be BA courses
- At least 6 credits must be upper-division

Note: The B.B.A. degree requires 50 percent of the accounting, business administration and economics credits to be earned in residence at UAF. Twenty-four out of the last 30 credits earned must be taken at UAF.

Note: Only one B.B.A. degree may be earned with a concentration in finance, general business, marketing, sport management or leadership.

### Minor, Finance

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BA F325</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete two from the following:

- BA F423 Investment Analysis
- BA F424 Real Estate and Alternative Investments
- BA F454 Student Investment Fund
- BA F455 Portfolio Management
- BA F461 International Finance

### Minor, General Business

Minimum Requirements for Minor: 15 credits

Complete five School of Management-approved courses.

- At least three must be BA courses.
- At least six hours must be upper-division.

### Minor, Management and Organizations

Minimum Requirements for Minor: 15 credits

Complete five from the following:

- BA F307 Introductory Human Resources Management
- BA F317 Employment Law
- BA F325 Financial Management
- BA F330 The Legal Environment of Business
- BA F343 Principles of Marketing
- BA F360 Operations Management
- BA F390 Organizational Theory and Behavior
- ECON F201X Principles of Economics I: Microeconomics

### Minor, Marketing

Minimum Requirements for Minor: 15 credits

Complete five from the following:

- BA F241 Advertising, Sales and Promotion
- BA F343 Principles of Marketing

Students majoring in business administration may not minor in the in the following: finance, general business, marketing, sport management, management and organizations, or the business administration track of the leadership minor.
Minor, Sport Management

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA/SPRT F280</td>
<td>Sport Leadership</td>
<td>3</td>
</tr>
<tr>
<td>BA/SPRT F281X</td>
<td>Introduction to Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>BA/SPRT F481</td>
<td>Entertainment and Sport Event Management</td>
<td>9</td>
</tr>
<tr>
<td>BA/SPRT F482</td>
<td>Sport Marketing</td>
<td></td>
</tr>
<tr>
<td>BA/SPRT F483</td>
<td>Sport Sales</td>
<td></td>
</tr>
<tr>
<td>PSY F337</td>
<td>Sport Psychology</td>
<td></td>
</tr>
</tbody>
</table>

Chemistry

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
http://www.uaf.edu/chem/

B.A., B.S. Degrees

Minimum Requirements for Degrees: 120 credits

Our programs prepare students for employment as research chemists in federal, state, municipal, academic or industrial laboratories, and in premedicine as laboratory technicians, industry supervisors and technical sales personnel. Our programs also provide a technical base for chemistry teachers. Graduates also find positions in the environmental sciences, oceanography and related interdisciplinary fields. Many chemistry graduates elect to pursue advanced M.S., Ph.D., pharmacology or MD degrees.

The chemistry curriculum meets the American Chemical Society standards covering the basics of general, organic, inorganic, physical and analytical chemistry, and biochemistry. Undergraduate research leading to publications is strongly encouraged, and many of the laboratory-based courses have a research component built into them. The B.S. and B.A. programs may be completed without an optional concentration, or students can opt for an additional focus in biochemistry, environmental chemistry or forensic chemistry. The B.S. programs generally prepare students for a career in chemistry or biochemistry, or for professional school. The B.S. in chemistry is an ACS-approved degree program. The environmental chemistry concentration provides courses that help students study the chemistry of the natural environment by adding geology, biology or atmospheric courses, and it prepares students for graduate studies and/or careers in the environmental industry. The biochemistry concentration provides an enhanced curriculum in biological chemistry for students seeking advanced careers in biochemistry, medicine or health sciences. The B.A. degree provides breadth in the curriculum for study of a minor subject and requires more humanities courses. The B.A. best prepares students for careers in chemistry-related fields like environmental law, forensic science, science education, anthropology, etc. Limited teaching assistantships are often available for upper-division students, which strengthen leadership and communication skills.

The bachelor’s degrees in chemistry and concentrations in biochemistry and environmental chemistry provide excellent research opportunities and background for undergraduate students through connection to corresponding graduate programs. See graduate programs in chemistry (p. 266), biochemistry and molecular biology (p. 264), and environmental chemistry (p. 290).

The Chemistry and Biochemistry Department is housed in the Reichardt Building, where laboratories are equipped with research-grade instrumentation, providing hands-on experience to students for entry into graduate school or industry. See the departmental website for more information, http://www.uaf.edu/chem/.

Degrees

- B.A., Chemistry (p. 176) — Admission to this program is currently suspended.
- B.S., Chemistry (p. 177)

Minor

- Minor, Chemistry (p. 179)
- Minor, Biochemistry (p. 179)

B.A., Chemistry

Admission to this program is currently suspended.

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F104X</td>
<td>College Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td></td>
</tr>
</tbody>
</table>

B.A. Degree Requirements

Complete the B.A. degree requirements. (p. 150)

As part of the B.A. degree requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td></td>
</tr>
</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F202</td>
<td>Basic Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F212</td>
<td>Chemical Equilibrium and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F314</td>
<td>Analytical Instrumental Laboratory</td>
<td>3</td>
</tr>
</tbody>
</table>
CHEM F321  Organic Chemistry I  4
CHEM F325  Organic Chemistry II  3-4
or CHEM F351  General Biochemistry: Metabolism
CHEM F331  Physical Chemistry I  4
CHEM F481  Seminar  1  1
CHEM F482  Seminar  1  2

University Requirement  2  39

1  Fulfills the baccalaureate capstone requirement.
2  Ensure that you have satisfied the university requirement of 39 upper-division credits, which will typically require either taking more upper-division chemistry courses or a significant number of upper-division courses in other disciplines, likely your minor.

Note: This degree does not encompass the depth required to be an American Chemistry Society-approved chemistry degree. Students taking this track will not receive a certificate from ACS. Students intending to continue in chemistry or biochemistry careers or graduate studies should select a B.S. degree program.

OPTIONAL CONCENTRATION: FORENSIC CHEMISTRY

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

Code  Title  Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F314</td>
<td>Analytical Instrumental Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F332</td>
<td>Physical Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
<td>3</td>
</tr>
<tr>
<td>JUST F222</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>JUST F251X</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>JUST F300X</td>
<td>Ethics and Justice 1</td>
<td>3</td>
</tr>
<tr>
<td>JUST F354</td>
<td>Procedural Law</td>
<td>3</td>
</tr>
<tr>
<td>JUST F454</td>
<td>Advanced Problems in Procedural Law</td>
<td>3</td>
</tr>
</tbody>
</table>

1  JUST F300X may not be used to fulfill the degree ethics requirement.
Note: Upon completing the required curriculum and fulfilling all general university requirements, students will receive a certificate from the American Chemical Society indicating approval of their degree program.

Optional Concentrations: Biochemistry, Environmental Chemistry

**BIOCHEMISTRY**

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>General Education Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>and PHYS F104X</td>
<td>and College Physics II</td>
<td></td>
</tr>
<tr>
<td>or PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>and PHYS F212X</td>
<td>and General Physics II</td>
<td></td>
</tr>
</tbody>
</table>

**B.S. Degree Requirements**

Complete the B.S. degree requirements. (p. 154)

As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td></td>
</tr>
</tbody>
</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F202</td>
<td>Basic Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F212</td>
<td>Chemical Equilibrium and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F321</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F325</td>
<td>Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F331</td>
<td>Physical Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F351</td>
<td>General Biochemistry: Metabolism</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F450</td>
<td>Information Storage and Transfer: Molecules and Pathways</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F481</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CHEM F482</td>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CHEM F488</td>
<td>Undergraduate Chemistry and Biochemistry Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete four from the following: ^1 12-14

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F332</td>
<td>Physical Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM F434</td>
<td>Chemistry Capstone Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM F314</td>
<td>Analytical Instrumental Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM F402</td>
<td>Inorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM F420</td>
<td>Applications of NMR Spectroscopy</td>
<td></td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td></td>
</tr>
</tbody>
</table>

Complete 10 credits from the following: ^1 10

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F240</td>
<td>Beginnings in Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL F260</td>
<td>Principles of Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
<td></td>
</tr>
</tbody>
</table>

^1 Courses selected under these areas must meet baccalaureate degree requirements for 39 upper-division credits.

Note: This degree is intended for students interested in careers in biochemistry or pre-professional students, providing extra depth in biological sciences. The selection of optional courses will determine if the curriculum conforms to the American Chemistry Society-approved chemistry degree. Students desiring an ACS-approved chemistry degree should consult with their advisor about optional courses that will meet ACS requirements.

**ENVIRONMENTAL CHEMISTRY**

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>General Education Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>and PHYS F104X</td>
<td>and College Physics II</td>
<td></td>
</tr>
<tr>
<td>or PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>and PHYS F212X</td>
<td>and General Physics II</td>
<td></td>
</tr>
</tbody>
</table>

**B.S. Degree Requirements**

Complete the B.S. degree requirements. (p. 154)

As part of the B.S. degree, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td></td>
</tr>
</tbody>
</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F202</td>
<td>Basic Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F321</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F325</td>
<td>Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F331</td>
<td>Physical Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F351</td>
<td>General Biochemistry: Metabolism</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F450</td>
<td>Information Storage and Transfer: Molecules and Pathways</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F481</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CHEM F482</td>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CHEM F488</td>
<td>Undergraduate Chemistry and Biochemistry Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 10 credits from the following: ^1 10

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
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<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM F202</td>
<td>Basic Inorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM F212</td>
<td>Chemical Equilibrium and Analysis</td>
<td></td>
</tr>
<tr>
<td>CHEM F314</td>
<td>Analytical Instrumental Laboratory</td>
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<td>CHEM F325</td>
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<td></td>
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<tr>
<td>CHEM F331</td>
<td>Physical Chemistry I</td>
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</tr>
<tr>
<td>CHEM F332</td>
<td>Physical Chemistry II</td>
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<tr>
<td>CHEM F434</td>
<td>Chemistry Capstone Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM F481</td>
<td>Seminar</td>
<td></td>
</tr>
<tr>
<td>CHEM F482</td>
<td>Seminar</td>
<td></td>
</tr>
<tr>
<td>CHEM F488</td>
<td>Undergraduate Chemistry and Biochemistry Research</td>
<td>3-4</td>
</tr>
</tbody>
</table>
or CHEM F288 and CHEM F488
Introduction to Chemical Research and Undergraduate Chemistry and Biochemistry Research

MATH F253X Calculus III 4

Complete two from the following: 7-8

ATM F101X Weather and Climate of Alaska
BIOL F115X Fundamentals of Biology I
BIOL F116X Fundamentals of Biology II
GEOS F101X The Dynamic Earth
GEOS F262 Rocks and Minerals

Complete two from the following: 6-7

ATM F401 Introduction to Atmospheric Sciences
BIOL F342 Microbiology
CHEM F406 Atmospheric Chemistry
CHEM F455 Environmental Toxicology
GEOS F417 Introduction to Geochemistry
NRM F380 Soils and the Environment

Note: A course in statistics (e.g. STAT F200X, STAT F300, or GEOS F430) is suggested. The selection of optional courses will determine if the curriculum conforms to the American Chemistry Society-approved chemistry degree. Students desiring an ACS-approved chemistry degree should consult with their advisor about optional courses that will meet ACS requirements.

**Requirements for Chemistry Teachers (Grades 7-12)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete all the requirements of the chemistry B.A. or B.S. degree.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All prospective science teachers must complete the following:</td>
<td></td>
</tr>
<tr>
<td>PHIL F481</td>
<td>Philosophy of Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: We strongly recommend that prospective secondary science teachers seek advising from the Alaska College of Education early in their undergraduate degree program so that they can be appropriately advised of the State of Alaska requirements for teacher licensure.

**Minor, Biochemistry**

**Minimum Requirements for Minor: 26 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F202</td>
<td>Basic Inorganic Chemistry</td>
<td>3-4</td>
</tr>
<tr>
<td>or CHEM F332</td>
<td>Physical Chemistry II</td>
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<tr>
<td>CHEM F212</td>
<td>Chemical Equilibrium and Analysis</td>
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</table>

**Child Development and Family Studies**

College of Rural and Community Development
Department of Social and Human Development
http://www.uaf.edu/rural/

**B.A. Degree**

Minimum Requirements for Degree: 120 credits

This program provides the necessary preparation for early childhood educators who wish to advance their professional knowledge and career opportunities with specialized study in administration, curriculum and teaching, family support, or infants and toddlers.

The child development and family studies program meets professional preparation standards developed by the National Association for the Education of Young Children. These six core standards and field experience expectations guide the CDFS B.A. program content and outline a set of common expectations for professional knowledge, skills and dispositions within the field of early care and education in conjunction with family studies.

The program supports students who desire a strong foundation in the field of early childhood by integrating the early childhood education A.A.S. content requirements with that of the child development and family studies B.A.. Students are required to complete the program major and one of the specialized concentration areas: administration within the early childhood field, curriculum and teaching, family support, or infant and toddler. Students entering the child development and family studies B.A. program with an A.A. or A.A.S. degree in early childhood education from a regionally accredited college or university will receive 23 transfer credits toward the program major. Any additional courses will need to be evaluated on an individual basis.

Flexible course delivery fosters successful completion for early childhood professionals living in both rural and urban areas of Alaska. All program and concentration area courses must be completed with a C grade or better, with the exclusion of all clinical practice course work which must completed with a B grade or better. Completion of the CDFS B.A. will meet requirements for both a major and minor.

**Minor, Chemistry**

• B.A., Child Development and Family Studies (p. 180)
B.A., Child Development and Family Studies

Concentrations: Administration Within the Early Childhood Field, Curriculum and Teaching, Family Support, and Infant and Toddler

Minimum Requirements for Degree: 120 credits
Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
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<tr>
<td></td>
<td>B.A. Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
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</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>ECE F101</td>
<td>Introduction to Early Childhood Profession</td>
<td>3</td>
</tr>
<tr>
<td>ECE F130</td>
<td>Culture, Learning and the Young Child</td>
<td>2</td>
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<tr>
<td>ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
<td>3</td>
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<tr>
<td>ECE F107</td>
<td>Child Development II: The Preschool and Primary Years</td>
<td>3</td>
</tr>
<tr>
<td>ECE F110</td>
<td>Safe, Healthy Learning Environments</td>
<td>3</td>
</tr>
<tr>
<td>ECE F140</td>
<td>Positive Social and Emotional Development</td>
<td>3</td>
</tr>
<tr>
<td>ECE F210</td>
<td>Child Guidance</td>
<td>3</td>
</tr>
<tr>
<td>ECE F229</td>
<td>Foundations in Nutrition and Physical Wellness</td>
<td>3</td>
</tr>
<tr>
<td>ECE F305</td>
<td>Social Emotional Development: Reflection and Practice</td>
<td>3</td>
</tr>
<tr>
<td>ECE F342</td>
<td>Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>ECE F350</td>
<td>Play: Foundation for Development</td>
<td>3</td>
</tr>
<tr>
<td>ECE F445</td>
<td>Adolescence Through the Lifespan</td>
<td>3</td>
</tr>
<tr>
<td>ECE F480</td>
<td>Child Development and Family Studies Portfolio 1</td>
<td>1</td>
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<tr>
<td></td>
<td>Concentrations 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following concentrations:</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Administration within the Early Childhood Field</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curriculum and Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Infant and Toddler</td>
<td></td>
</tr>
</tbody>
</table>

1 Fulfills the baccalaureate capstone requirement.
2 Students completing any CFDS concentration will need an additional 3 upper-division (300-400-level) credits.

Concentrations

ADMINISTRATION WITHIN THE EARLY CHILDHOOD FIELD

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F240</td>
<td>Inclusion of Children with Special Needs (or department-approved course on special needs)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CURRICULUM AND TEACHING</td>
<td></td>
</tr>
<tr>
<td>ECE F310</td>
<td>Constructivist Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>ECE F340</td>
<td>Financial Management of Early Childhood Programs</td>
<td>3</td>
</tr>
<tr>
<td>ECE F341</td>
<td>Personnel Management of Early Childhood Programs</td>
<td>3</td>
</tr>
<tr>
<td>ECE F345</td>
<td>Screening, Assessment and Data Collection Tools</td>
<td>3</td>
</tr>
<tr>
<td>ECE F410</td>
<td>Supporting Family Relationships through Mentoring</td>
<td>3</td>
</tr>
<tr>
<td>ECE F450</td>
<td>Leadership and Advocacy in the Early Childhood Field</td>
<td>3</td>
</tr>
<tr>
<td>ECE F471</td>
<td>Clinical Practice: Organizational Action Research</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FAMILY SUPPORT</td>
<td></td>
</tr>
<tr>
<td>ECE F242</td>
<td>Child and Family Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ECE F301</td>
<td>Parents as Partners in Education</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F302</td>
<td>Building Home Program Relationships: Prenatal to 3 Years</td>
<td></td>
</tr>
<tr>
<td>ECE F306</td>
<td>Building Bridges to Support Family Mental Health</td>
<td>3</td>
</tr>
<tr>
<td>ECE F405</td>
<td>Seminar in Culture and Child-rearing Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECE F410</td>
<td>Supporting Family Relationships through Mentoring</td>
<td>3</td>
</tr>
<tr>
<td>ECE F442</td>
<td>Family Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>ECE F471</td>
<td>Clinical Practice: Organizational Action Research</td>
<td>3</td>
</tr>
<tr>
<td>SWK F360</td>
<td>Child Abuse and Neglect</td>
<td>3</td>
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</table>

INFANT AND TODDLER

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECE F214</td>
<td>Infants and Toddlers</td>
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</tr>
<tr>
<td>ECE F302</td>
<td>Building Home Program Relationships: Prenatal to 3 Years</td>
<td>3</td>
</tr>
<tr>
<td>ECE F304</td>
<td>Attachment and Social Development</td>
<td>3</td>
</tr>
<tr>
<td>ECE F320</td>
<td>Environment and Curriculum for Infants and Toddlers</td>
<td>3</td>
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</tbody>
</table>
### Concentrations

**ADMINISTRATION WITHIN THE EARLY CHILDHOOD FIELD**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F240</td>
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<tr>
<td>ECE F310</td>
<td>Constructivist Curriculum</td>
<td>3</td>
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<td>ECE F340</td>
<td>Financial Management of Early Childhood Programs</td>
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<td>ECE F341</td>
<td>Personnel Management of Early Childhood Programs</td>
<td>3</td>
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<td>ECE F345</td>
<td>Screening, Assessment and Data Collection Tools</td>
<td>3</td>
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<td>ECE F410</td>
<td>Supporting Family Relationships through Mentoring</td>
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<td>Leadership and Advocacy in the Early Childhood Field</td>
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</tr>
<tr>
<td>ECE F471</td>
<td>Clinical Practice: Organizational Action Research</td>
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</table>

**CURRICULUM AND TEACHING**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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</thead>
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<tr>
<td>ECE F240</td>
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</tr>
<tr>
<td>ECE F310</td>
<td>Constructivist Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>ECE F360</td>
<td>Assessment in Early Childhood</td>
<td>3</td>
</tr>
<tr>
<td>ECE F372</td>
<td>Clinical Practice: Classroom Research 1</td>
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<tr>
<td>ECE F420</td>
<td>Developing Literacy in the Early Years</td>
<td>3</td>
</tr>
<tr>
<td>ECE F430</td>
<td>Fine Arts for the Early Years</td>
<td>3</td>
</tr>
<tr>
<td>ECE F440</td>
<td>Exploring Math and Science</td>
<td>3</td>
</tr>
<tr>
<td>ECE F472</td>
<td>Clinical Practice: Classroom Management 1</td>
<td>3</td>
</tr>
</tbody>
</table>

### Family Support

**Code** | **Title**                                                                 | **Credits** |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>ECE F242</td>
<td>Child and Family Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ECE F301</td>
<td>Parents as Partners in Education</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or ECE F302</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Building Home Program Relationships: Prenatal to 3 Years</td>
<td></td>
</tr>
<tr>
<td>ECE F306</td>
<td>Building Bridges to Support Family Mental Health</td>
<td>3</td>
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<tr>
<td>ECE F405</td>
<td>Seminar in Culture and Child-rearing Practices</td>
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<tr>
<td>ECE F410</td>
<td>Supporting Family Relationships through Mentoring</td>
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<tr>
<td>ECE F442</td>
<td>Family Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>ECE F471</td>
<td>Clinical Practice: Organizational Action Research</td>
<td>3</td>
</tr>
<tr>
<td>SWK F360</td>
<td>Child Abuse and Neglect</td>
<td>3</td>
</tr>
</tbody>
</table>

**NOTE:** 23 credits will be accepted towards the program major. These credits will be applied to the following specific program requirements: ECE F101, ECE F104X, ECE F107, ECE F110, ECE F130, ECE F140, ECE F210 and ECE F229.

**Minimum Requirements for Degree: 120 credits**

Students must earn a C grade or better in each course.

---

1. Student must earn a B grade or higher in each course.

For students entering the program with an A.A., A.S. or A.A.S. degree in early childhood education from a regionally accredited college or university.

**NOTE:** 23 credits will be accepted towards the program major. These credits will be applied to the following specific program requirements: ECE F101, ECE F104X, ECE F107, ECE F110, ECE F130, ECE F140, ECE F210 and ECE F229.

Students must earn a B grade or higher in each course.

---

1. Students completing any CFDS concentration will need an additional 3 upper-division (300-400-level) credits.
Civil Engineering

College of Engineering and Mines
Department of Civil and Environmental Engineering
907-474-7241
http://cem.uaf.edu/cee/

B.S. Degree

Minimum Requirements for Degree: 134 credits

Civil engineers plan, design and supervise the construction of public and private structures such as space-launch facilities, offshore structures, bridges, buildings, tunnels, highways, transit systems, dams, airports, irrigation projects, and water treatment and distribution facilities.

Civil engineers use sophisticated technology and employ computer-aided engineering during design, construction, project scheduling and cost control project phases. They are creative problem solvers involved in community development and the challenges of pollution, deteriorating infrastructure, traffic congestion, energy needs, floods, earthquakes and urban planning.

The civil engineering program at UAF has been accredited since 1940 and is currently accredited by the Engineering Accreditation Commission of ABET. All engineering programs in the department give special attention to problems of Northern regions.

The program educational objectives of the B.S. in civil engineering program are:
1. Graduates earnestly pursue professional careers in civil engineering and related fields.
2. Graduates innovatively meet engineering challenges, including those of cold climates and remote locations, working independently and in teams.
3. Graduates actively serve the professional community, pursue licensure and lifelong learning, and demonstrate high ethical standards.

In addition to general civil engineering courses, the department offers specialties in transportation, geotechnical, structures, water resources, hydrology and environmental studies. These courses emphasize principles of analysis, planning and engineering design in northern regions.

For more information about the civil engineering program mission, goals and educational objectives, visit http://cem.uaf.edu/cee/abet/.

Degree

• B.S., Civil Engineering (p. 182)

B.S., Civil Engineering

Minimum Requirements for Degree: 134 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
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</tr>
</tbody>
</table>

B.S. Degree Requirements

Complete the B.S. degree requirements. (p. 154)

As part of the B.S. degree requirements, complete:

- MATH F252X Calculus II
- PHYS F211X General Physics I
- PHYS F212X General Physics II

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CE F112</td>
<td>Elementary Surveying</td>
<td>3</td>
</tr>
<tr>
<td>CE F302</td>
<td>Fundamentals of Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE F326</td>
<td>Introduction to Geotechnical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CE F331</td>
<td>Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CE F334</td>
<td>Properties of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CE F341</td>
<td>Environmental Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CE F344</td>
<td>Water Resources Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE F342</td>
<td>Steel Design</td>
<td>3</td>
</tr>
<tr>
<td>CE F347</td>
<td>Design of Engineered Systems I</td>
<td>3</td>
</tr>
<tr>
<td>CE F348</td>
<td>Design of Engineered Systems II</td>
<td>3</td>
</tr>
<tr>
<td>CE F470</td>
<td>Civil Engineering Internship</td>
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<tr>
<td>or CE F471</td>
<td>Field Practicum</td>
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<tr>
<td>ES F101</td>
<td>Introduction to Engineering</td>
<td>3</td>
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<tr>
<td>ES F201</td>
<td>Computer Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ES F209</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>ES F210</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ES F301</td>
<td>Engineering Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ES F331</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ESM F422</td>
<td>Engineering Decisions</td>
<td>3</td>
</tr>
<tr>
<td>ESM F450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>GE F261</td>
<td>General Geology for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
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</tbody>
</table>
MATH F302  Differential Equations  3

Technical Electives  2

Field of environmental engineering, construction or  3
transportation

CE, ENVE, ESM courses or approved technical courses,  6

ES F307  Elements of Electrical Engineering  3
or ES F346  Introduction to Thermodynamics

Fundamentals of Engineering (FE) Examination

Complete the Fundamentals of Engineering (FE) examination  administered by the State of Alaska.

1  Fulfills the baccalaureate capstone requirement.

2  Up to two graduate-level courses may be used towards graduation.  Graduate-level courses must be approved by student's advisor, and  the student must be within two semesters of graduation and have at  least a 3.0 GPA to take graduate-level courses.

Note: The ability to use computers for normal class work is expected in  all engineering classes above the F100 level.

Communication

College of Liberal Arts
Department of Communication and Journalism
907-474-6591
http://www.uaf.edu/cojo/

B.A. Degree

Minimum Requirements for Degree: 120 credits

The communication program teaches students to communicate  effectively and ethically in a rapidly changing world characterized  by diversity in gender, culture and belief. It offers a comprehensive  background in the discipline in preparation for employment or further  education. Students majoring in other disciplines find communication  electives valuable additions to their programs.

The program is both theoretical and pragmatic, designed to prepare  students for the professional workplace or for advanced study.

Communication courses are available online and in the classroom.

The minor in dispute resolution gives students a theoretical background  for and practice of alternative dispute resolution. The curriculum  supports the developing restorative justice emphasis of the B.A. in  justice, and is applicable to business administration, social work,  psychology and counseling contexts.

Degree

•  B.A., Communication (p. 183)

Minors

•  Minor, Communication (p. 184)
•  Minor, Alternative Dispute Resolution (p. 183)

B.A., Communication

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

Code  Title  Credits

General University Requirements
Complete the general university requirements.  (p. 142)

General Education Requirements
Complete the general education requirements.  (p. 145)

B.A. Degree Requirements
Complete the B.A. degree requirements.  (p. 150)

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COJO F101X</td>
<td>Media and Culture</td>
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<tr>
<td>COJO F202</td>
<td>News Writing for the Media</td>
<td>3</td>
</tr>
<tr>
<td>COJO F330</td>
<td>Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>COJO F380</td>
<td>Women, Minorities and the Media</td>
<td>3</td>
</tr>
<tr>
<td>COJO F401</td>
<td>Communication Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>COJO F425</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>COJO F482</td>
<td>Capstone Seminar in Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete four from the following:  1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F220</td>
<td>Professional Interviewing</td>
<td></td>
</tr>
<tr>
<td>COJO F300X</td>
<td>Communicating Ethics</td>
<td>2</td>
</tr>
<tr>
<td>COJO F320</td>
<td>Communication and Language</td>
<td></td>
</tr>
<tr>
<td>COJO F321</td>
<td>Nonverbal Communication</td>
<td></td>
</tr>
<tr>
<td>COJO F322</td>
<td>Communication in Interpersonal Relationships</td>
<td></td>
</tr>
<tr>
<td>COJO F331</td>
<td>Advanced Group Communication</td>
<td></td>
</tr>
<tr>
<td>COJO F335</td>
<td>Organizational Communication</td>
<td></td>
</tr>
<tr>
<td>COJO F352</td>
<td>Family Communication</td>
<td></td>
</tr>
<tr>
<td>COJO F353</td>
<td>Conflict, Mediation and Communication</td>
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</tr>
<tr>
<td>COJO F400</td>
<td>Professional Internship</td>
<td></td>
</tr>
<tr>
<td>COJO F431</td>
<td>Public Relations Campaigns</td>
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</tr>
<tr>
<td>COJO F432</td>
<td>Professional Public Speaking</td>
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</tr>
<tr>
<td>COJO F441</td>
<td>Persuasion</td>
<td></td>
</tr>
<tr>
<td>COJO F462</td>
<td>Communication in Health Contexts</td>
<td></td>
</tr>
<tr>
<td>COJO F475</td>
<td>Applied Communication in Training and Development</td>
<td></td>
</tr>
</tbody>
</table>

1  With approval of advisor, an appropriate-level special topics or  independent studies course in communication may be used to meet  this requirement.

2  If taken to meet the degree specific requirement for ethics, then the  student must take an additional F300- or F400-level communication  course to complete the major.

3  Fulfills the baccalaureate capstone requirement.

Minor, Alternative Dispute Resolution

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F201</td>
<td>Dispute Resolution and Restorative Practices</td>
<td></td>
</tr>
<tr>
<td>COJO F302</td>
<td>Dispute Systems Design</td>
<td></td>
</tr>
<tr>
<td>COJO F353</td>
<td>Conflict, Mediation and Communication</td>
<td></td>
</tr>
<tr>
<td>COJO F451</td>
<td>Cross-cultural Conflict Analysis and Intervention</td>
<td></td>
</tr>
</tbody>
</table>

Complete four from the following:  12
Computer Engineering

College of Engineering and Mines
Department of Electrical and Computer Engineering
907-474-7137
http://cem.uaf.edu/ece/

B.S. Degree

Minimum Requirements for Degree: 134 credits

The mission of the Electrical and Computer Engineering Department is to offer the highest quality, contemporary education in electrical and computer engineering at the undergraduate and graduate levels and to perform research appropriate to the technical needs of Alaska, the nation and the world.

Computer engineering is a relatively new discipline. It lies somewhere in the middle between computer science, which covers theory, algorithms, software, networking, graphics and computer architecture, and electrical engineering, which covers microelectronics, electrical circuits and devices, networks, communications systems, computer architecture, hardware design and systems analysis. Computer engineers design, analyze, produce, operate, program and maintain computer and digital systems. They apply theories and principles of science and mathematics to the design of hardware, software, networks and processes to solve technical problems.

Over the past decade, computers have evolved into complex systems that may consist of single machines or many interconnected computers linked by a data network. In one form or another, computers now control most telephone and communications systems, process control and manufacturing automation systems, management information systems, household appliances, automobiles, transportation systems and medical instrumentation. Computers also form the core of the Internet. To work in the constantly evolving discipline of computer systems engineering, the computer engineer must acquire competence in both digital computer hardware and the fundamentals of software engineering.

Careers in computer engineering are as wide and varied as computer systems themselves. Systems range from embedded computer systems found in consumer products or medical devices; control systems for automobiles, aircraft and trains; to more wide-ranging applications in telecommunications, financial transactions and information systems.

The faculty of the Electrical and Computer Engineering Department provide a positive learning environment that enables students to pursue their goals in an innovative program that is rigorous and challenging, open and supportive. The B.S. program develops practical skills by emphasizing hands-on experience in the design, implementation, and validation of electrical systems in an environment that fosters and encourages innovation and creativity. This approach builds the foundation for the program’s educational objectives:

1. Breadth: Graduates will use their broad education emphasizing computer engineering as the foundation for productive careers in the public or private sectors, graduate education, and lifelong learning.
2. Depth: Graduates will apply their understanding of the fundamental knowledge prerequisite for the practice of and/or advanced study in computer engineering, including its scientific principles, rigorous analysis and creative design.
3. Professional skills: Graduates will apply skills in clear communication, responsible teamwork, professional attitudes and ethics needed to succeed in the complex modern work environment.

These objectives serve the department, college and university missions by insuring that all graduates of the program have received a high quality, contemporary education that prepares them for a rewarding career in computer engineering.

Candidates for the B.S. degree are required to take the state of Alaska Fundamentals of Engineering Examination in their general field.

For more information about the computer engineering program mission, goals and educational objectives, visit http://cem.uaf.edu/ece/abet/.

B.S., Computer Engineering

Minimum Requirements for Degree: 134 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
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<tr>
<td>and CHEM F106X</td>
<td>and General Chemistry II</td>
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</tr>
<tr>
<td>or PHYS F213X</td>
<td>Elementary Modern Physics</td>
<td></td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>B.S. Degree Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete the B.S. degree requirements. (p. 154)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>As part of the B.S. degree requirements, complete:</td>
<td></td>
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</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
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</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
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</tr>
<tr>
<td>and PHYS F212X</td>
<td>and General Physics II</td>
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</table>

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CS F201</td>
<td>Computer Science I</td>
<td>3</td>
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<td>CS F202</td>
<td>Computer Science II</td>
<td>3</td>
</tr>
<tr>
<td>CS F301</td>
<td>Assembly Language Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS F311</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS F321</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>
CS F331  Programming Languages  3
EE F102  Introduction to Electrical and Computer Engineering  3
EE F203  Electric Circuits  4
EE F204  Electrical Engineering Fundamentals II  4
EE F333  Electronic Devices  4
EE F311  Engineering Electromagnetics I  3
EE F331  High-frequency Lab  1
EE F343  Digital Systems Analysis and Design  4
EE F353  Circuit Theory  3
EE F354  Engineering Signal Analysis  3
EE F443  Computer Engineering Analysis and Design  4
EE F444  Embedded Systems Design  4
EE F463  Communication Networks  3
ES F101  Introduction to Engineering  3
ESM F450  Economic Analysis and Operations  3
MATH F253X  Calculus III  4
MATH F302  Differential Equations  3
MATH F307  Discrete Mathematics  3

Electives

Approved Electives  6
Recommended Electives:

- CS F361  Systems Security and Administration
- CS F381  Computer Graphics
- CS F411  Analysis of Algorithms
- CS F421  Distributed Operating Systems
- CS F471  Senior Capstone I
- CS F472  Senior Capstone II
- CS F481  Graphics Rendering
- EE F334  Electronic Circuit Design
- EE F451  Digital Signal Processing
- EE F461  Communication Systems
- EE F464  Communication Networks Design
- EE F471  Automatic Control

Approved Engineering Science Electives  3

- ES F208  Mechanics
- ES F331  Mechanics of Materials
- ES F341  Fluid Mechanics
- ES F346  Introduction to Thermodynamics
- ME F334  Elements of Material Science/Engineering

Fundamentals of Engineering (FE) Examination

Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

1  Fulfills the baccalaureate capstone requirement.

Computer Information Technology Specialist

College of Rural and Community Development
Community and Technical College
907-455-2800

Minor Only

Minor

- Minor, Computer Information Technology Specialist (p. 185)

Minor, Computer Information Technology Specialist

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CITS F204</td>
<td>Introduction to Network Support and Administration</td>
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<tr>
<td>CITS F212</td>
<td>Server Operating Systems</td>
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<tr>
<td>CITS F261</td>
<td>Computer and Network Security</td>
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<tr>
<td>Two CITS electives</td>
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Computer Science

College of Engineering and Mines
Department of Computer Science
907-474-2777
http://www.cs.uaf.edu

B.S., B.S./M.S. Degrees

Minimum Requirements for Degrees: B.S.: 120 credits; B.S./M.S.: 141 credits

- Computer science is the study of information handling and its application to the problems of the world. Computing is widely used in support of science, engineering, business, law, medicine, education and the social sciences, and offers abundant employment opportunities.
- The B.S. and M.S. degrees follow the recommendations of the Association for Computing Machinery and the Institute for Electrical and Electronic Engineers. The B.S. degree is accredited by the Computing Accreditation Commission of ABET.
- The computer science undergraduate program introduces the fundamentals of computer programming, hardware and theory. It emphasizes the application of general principles to real-world problems. Mathematics and engineering play critical roles in the core. A solid background in fundamentals enables graduates to understand the uses of today’s computers and to participate in future developments.

Degree

- B.S., Computer Science (p. 185)
- B.S./M.S., Computer Science (p. 186)

Minor

- Minor, Computer Science (p. 187)

B.S., Computer Science
Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<td>General University Requirements</td>
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<td></td>
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<td>General Education Requirements</td>
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</tr>
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<td>Complete the general education requirements. (p. 145)</td>
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</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td>B.S. Degree Requirements</td>
<td>Complete the B.S. degree requirements. (p. 154)</td>
<td></td>
</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH F307</td>
<td>Discrete Mathematics</td>
<td></td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td></td>
</tr>
<tr>
<td>STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any approved ethics course</td>
<td></td>
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<tr>
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<td>Complete one of the following:</td>
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</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH F310</td>
<td>Numerical Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH F314</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH F371</td>
<td>Probability</td>
<td></td>
</tr>
<tr>
<td>MATH F405</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH F408</td>
<td>Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>MATH F460</td>
<td>Mathematical Modeling</td>
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</tr>
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<td></td>
<td>Program Requirements</td>
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<tr>
<td>CS F201</td>
<td>Computer Science I</td>
<td>3</td>
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<td>CS F202</td>
<td>Computer Science II</td>
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<tr>
<td>CS F301</td>
<td>Assembly Language Programming</td>
<td>3</td>
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<tr>
<td>CS F311</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS F321</td>
<td>Operating Systems</td>
<td>3</td>
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<tr>
<td>CS F331</td>
<td>Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>CS F371</td>
<td>Computer Ethics and Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>CS F372</td>
<td>Software Construction</td>
<td>3</td>
</tr>
<tr>
<td>CS F411</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS F441</td>
<td>System Architecture</td>
<td>3-4</td>
</tr>
<tr>
<td>or EE F443</td>
<td>Computer Engineering Analysis and Design</td>
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</tr>
<tr>
<td>CS F471</td>
<td>Senior Capstone I</td>
<td>3</td>
</tr>
<tr>
<td>CS F472</td>
<td>Senior Capstone II</td>
<td>3</td>
</tr>
<tr>
<td>EE F341</td>
<td>Digital and Computer Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Electives in computer science at the F300 or F400 level or approved electives, such as:</td>
<td></td>
</tr>
<tr>
<td>EE F443</td>
<td>Computer Engineering Analysis and Design</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Fulfills the baccalaureate capstone requirement.

B.S./M.S., Computer Science

Complete the following admission requirements:

1. CS major (junior preferred) or senior standing.
2. GPA 3.25 or above based on a minimum of 24 credits. Students must maintain a cumulative GPA of 3.0 to remain in the program.
3. Submit a study goal statement.
4. Submit a UAF graduate application for admission.

Minimum Requirements for Degree: 141 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
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<td></td>
<td>General Education Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
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</tr>
<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td>B.S. Degree Requirements</td>
<td>Complete the B.S. degree requirements. (p. 154)</td>
<td></td>
</tr>
<tr>
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<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td></td>
</tr>
<tr>
<td>STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any approved ethics course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td></td>
</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
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<tr>
<td>MATH F310</td>
<td>Numerical Analysis</td>
<td></td>
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<tr>
<td>MATH F314</td>
<td>Linear Algebra</td>
<td></td>
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<tr>
<td>MATH F371</td>
<td>Probability</td>
<td></td>
</tr>
<tr>
<td>MATH F405</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH F408</td>
<td>Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>MATH F460</td>
<td>Mathematical Modeling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>CS F201</td>
<td>Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>CS F202</td>
<td>Computer Science II</td>
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<tr>
<td>CS F301</td>
<td>Assembly Language Programming</td>
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<tr>
<td>CS F311</td>
<td>Data Structures and Algorithms</td>
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<td>CS F331</td>
<td>Programming Languages</td>
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<td>CS F371</td>
<td>Computer Ethics and Technical Communication</td>
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<td>CS F372</td>
<td>Software Construction</td>
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<td>Analysis of Algorithms</td>
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<tr>
<td>CS F441</td>
<td>System Architecture</td>
<td>3-4</td>
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<tr>
<td>or EE F443</td>
<td>Computer Engineering Analysis and Design</td>
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<tr>
<td>CS F471</td>
<td>Senior Capstone I</td>
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<tr>
<td>CS F472</td>
<td>Senior Capstone II</td>
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<tr>
<td>EE F341</td>
<td>Digital and Computer Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH elective at the F300/F400 level</td>
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<tr>
<td>MATH F307</td>
<td>Discrete Mathematics</td>
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<tr>
<td>STAT F300</td>
<td>Statistics</td>
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<td>M.S. Program Requirements</td>
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<td>CS F600</td>
<td>Professional Software Development</td>
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<tr>
<td>CS F601</td>
<td>Algorithms, Architecture and Languages</td>
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</tr>
<tr>
<td>CS F690</td>
<td>Graduate Seminar and Project</td>
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</tr>
<tr>
<td>CS F691</td>
<td>Graduate Seminar and Project</td>
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</tr>
<tr>
<td></td>
<td>CS graduate level electives</td>
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</tbody>
</table>

Exam
Pass a written comprehensive exam in computer science theory and practice.

1 Fulfills the baccalaureate capstone requirement.

Note: For the master’s degree, a student must earn an A or B grade in F400-level courses. A grade of C will be accepted in F600-level courses provided a B grade point average is maintained.

Note: This degree program must be completed in seven years or the student will be disqualified from the program. If a student is disqualified, a B.S. in computer science will be awarded if:

1. completed in 10 years, and
2. the student meets the B.S. degree requirements for computer science.

**Minor, Computer Science**

**Minimum Requirements for Minor: 15 credits**

Students must earn a C-grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS F201</td>
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</tr>
<tr>
<td>CS F202</td>
<td>Computer Science II</td>
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</tr>
<tr>
<td>F300 or F400 level from CS</td>
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</tr>
<tr>
<td>EE F341</td>
<td>Digital and Computer Analysis and Design</td>
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<tr>
<td>MATH F310</td>
<td>Numerical Analysis</td>
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<tr>
<td>MATH F460</td>
<td>Mathematical Modeling</td>
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</tr>
<tr>
<td>Electives approved by a computer science advisor</td>
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</tr>
</tbody>
</table>

Note: Courses completed to satisfy this minor can be used to simultaneously satisfy other major or general distribution requirements.

**Digital Journalism**

College of Liberal Arts
Department of Communication and Journalism
907-474-7761
http://www.uaf.edu/cojo/

**B.A. Degree**

**Minimum Requirements for Degree: 120 credits**

The digital journalism program equips students with the broad skill set valued in the nation’s newsrooms and other communication fields.

In addition to the solid academic foundation delivered in the classroom, students receive practical experience working in media on and off campus. On campus, these include KUAC, a public television and radio station; KSUA, the student-owned FM radio station; and the Sun Star, the student-run online news site. Students complete their required professional media internships at a variety of radio and television stations, newspapers and other media-related businesses and organizations in and out of Alaska.

The department runs several laboratory facilities, including a digital newsroom and photography lab, dedicated audio and video bays, an advanced video editing/digital printing lab, two wet darkrooms and a photography studio.

**Degree**

- B.A., Digital Journalism (p. 187)

**Minor**

- Minor, Digital Journalism (p. 188)

**B.A., Digital Journalism**

**Minimum Requirements for Degree: 120 credits**

Students must earn a C-grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General University Requirements</td>
<td>Complete the general university requirements.</td>
<td>(p. 142)</td>
</tr>
<tr>
<td>General Education Requirements</td>
<td>Complete the general education requirements.</td>
<td>(p. 145)</td>
</tr>
<tr>
<td>B.A. Degree Requirements</td>
<td>Complete the B.A. degree requirements.</td>
<td>(p. 150)</td>
</tr>
<tr>
<td>As part of the B.A. degree requirements, complete:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST F132X</td>
<td>History of the U.S.</td>
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</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COJO F101X</td>
<td>Media and Culture</td>
<td>3</td>
</tr>
<tr>
<td>COJO F202</td>
<td>News Writing for the Media</td>
<td>3</td>
</tr>
<tr>
<td>COJO F204/ART F284</td>
<td>Basic Digital Photography</td>
<td>3</td>
</tr>
<tr>
<td>COJO F251</td>
<td>Introduction to Video Production</td>
<td>4</td>
</tr>
<tr>
<td>COJO F310</td>
<td>Reporting</td>
<td>3</td>
</tr>
<tr>
<td>COJO/WGS F380</td>
<td>Women, Minorities and the Media</td>
<td>3</td>
</tr>
<tr>
<td>COJO F400</td>
<td>Professional Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>COJO F413</td>
<td>Mass Media Law and Regulation</td>
<td>3</td>
</tr>
<tr>
<td>COJO F431</td>
<td>Public Relations Campaigns</td>
<td>3</td>
</tr>
<tr>
<td>COJO F454</td>
<td>Newsicast</td>
<td>3</td>
</tr>
<tr>
<td>COJO F490</td>
<td>Online Publication: &quot;Extreme Alaska&quot;</td>
<td>3</td>
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<tr>
<td>Complete one of the following:</td>
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</tr>
<tr>
<td>COJO F215</td>
<td>Radio Production</td>
<td></td>
</tr>
<tr>
<td>COJO F323</td>
<td>Editing for Journalists</td>
<td></td>
</tr>
<tr>
<td>COJO/FLPA F480</td>
<td>Documentary Filmmaking</td>
<td></td>
</tr>
<tr>
<td>Complete one course from the following list of approved journalism electives:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>COJO F215</td>
<td>Radio Production</td>
<td></td>
</tr>
<tr>
<td>COJO F220</td>
<td>Professional Interviewing</td>
<td></td>
</tr>
<tr>
<td>COJO F240</td>
<td>Foreign Corresponding</td>
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<tr>
<td>COJO F250</td>
<td>Website Design</td>
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</tr>
<tr>
<td>COJO/FLPA F280</td>
<td>Video Storytelling</td>
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<tr>
<td>COJO F300X</td>
<td>Communicating Ethics</td>
<td></td>
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<tr>
<td>COJO F311</td>
<td>Magazine Article Writing</td>
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<tr>
<td>COJO F323</td>
<td>Editing for Journalists</td>
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</tr>
<tr>
<td>COJO F390</td>
<td>Social Media Toolkit</td>
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<tr>
<td>COJO F402/ART F483</td>
<td>Advanced Photography</td>
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<tr>
<td>COJO F404</td>
<td>Photojournalism</td>
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</table>
Minor, Digital Journalism

Minimum Requirements for Minor: 15 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F101X</td>
<td>Media and Culture</td>
<td>3</td>
</tr>
<tr>
<td>COJO F202</td>
<td>News Writing for the Media</td>
<td>3</td>
</tr>
</tbody>
</table>

Approved Communication and Journalism (COJO) electives

1 Any journalism course taken for the major serves as an approved elective for the minor. Other approved electives for the minor are the same as those listed for the major.

Minor, Early Childhood Education

Minimum Requirements for Minor: 18 credits

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F101</td>
<td>Introduction to Early Childhood Profession</td>
<td>3</td>
</tr>
<tr>
<td>ECE F104X</td>
<td>Child Development I: Prenatal, Infants and Toddlers</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F107</td>
<td>Child Development II: The Preschool and Primary Years</td>
<td>3</td>
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</tbody>
</table>

Select 12 ECE credits 1

1 Including a minimum of 6 upper-division ECE credits and excluding special topics (ECE F-93) and current issue (ECE F249) courses.

Earth Science

College of Natural Science and Mathematics
Department of Geosciences
907-474-7565
http://www.uaf.edu/geology/

B.A. Degree

Minimum Requirements for Degree: 120-130 credits
This program provides broad training in various aspects of earth systems science. Three concentrations are available:

- earth systems science
- geological hazards and mitigation
- secondary education

The concentrations allow students to focus on different interests and career paths during their junior and senior years but offer considerable flexibility during the freshman and sophomore years.

The earth science concentration offers students a sound background in a broad spectrum of geoscience disciplines, with an emphasis on the interaction between earth systems. The geological hazards and mitigation concentration is designed for students who wish to pursue careers in communicating science, hazards analysis or emergency management-related natural disasters. The secondary education concentration is designed for students who plan to teach earth science in secondary school in Alaska. Requirements for certified teachers have been built into this concentration in consultation with the School of Education. Students choosing this concentration should consult with both the Department of Geosciences and the School of Education for advising.

Degree

- B.A., Earth Science (p. 188)

B.A., Earth Science

Concentrations: Earth Systems Science, Geological Hazards and Mitigation, Secondary Education

Minimum Requirements for Degree: 120-130 credits
Students must earn a C- grade or better in each course.
## General University Requirements
Complete the general university requirements. (p. 142)

## General Education Requirements
Complete the general education requirements. (p. 145)
As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM F103X</td>
<td>Introduction to General Chemistry</td>
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<tr>
<td>and CHEM F104X</td>
<td>and Introduction to Organic Chemistry and Biochemistry</td>
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<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
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<tr>
<td>and CHEM F106X</td>
<td>and General Chemistry II</td>
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<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
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<tr>
<td>and PHYS F104X</td>
<td>and College Physics II</td>
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</table>

## B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 150)
As part of the B.A. degree requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions</td>
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</table>

## Program Requirements
GEOS F101X  The Dynamic Earth  
4
or GEOS F120X  Glaciers, Earthquakes and Volcanoes: Past, Present and Future  
4
GEOS F112X  The History of Earth and Life  
4
or GEOS F106X  Life in the Age of Dinosaurs  
4

## Concentrations
Complete one of the following concentrations: 31-49
- Earth Systems Science
- Geological Hazards and Mitigation
- Secondary Education

### EARTH SYSTEMS SCIENCE

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOS F304</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F315</td>
<td>Paleobiology and Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>GEOG F483</td>
<td>Research Design, Writing and Presentation Methods ¹</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one course from each of the following areas: 9-12
- Earth Systems
  - GEOG F101X  Expedition Earth: Introduction to Geography  
  - MSL F111X  The Oceans  
  - NRM F101  Natural Resources Conservation and Policy  
  - PHYS F175X  Introduction to Astronomy  
- Earth Materials
  - GEOS F213  Mineralogy  
  - GEOS F262  Rocks and Minerals  
- Geospatial Sciences
  - GEOG F338  Introduction to Geographic Information Systems  
  - GEOS F225  Field and Computer Methods in Geology and Photogeology  
  - GEOS F408  and GEOS F408  

Complete two courses from one of the following specialized areas:

#### Weather and Climate
- ATM F101X  Weather and Climate of Alaska  
- GEOG F307  Weather and Climate

### GEOLOGICAL HAZARDS AND MITIGATION

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>SOC F101X</td>
<td>Introduction to Sociology</td>
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<tr>
<td>COJO F300X</td>
<td>Communicating Ethics</td>
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<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
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</tbody>
</table>

## Program Requirements
ED F486  Media Literacy  
3
ENGL F314  Technical Writing  
3
GEOG F483  Research Design, Writing and Presentation Methods ¹  
3
GEOS F304  Geomorphology  
3
GEOS F380  Geological Hazards  
3
GEOS F406  Volcanology  
3
HSEM F301  Principles of Emergency Management and Homeland Security  
3
PHYS F175X  Introduction to Astronomy  
4

Complete one course from each of the following areas: 9-12
- Earth Materials
  - GEOS F213  Mineralogy  
  - GEOS F262  Rocks and Minerals  
- Geospatial Sciences
  - GEOG F338  Introduction to Geographic Information Systems  
  - GEOS F225  Field and Computer Methods in Geology and Photogeology  
  - GEOS F408  and GEOS F408  

### Weather and Climate
- ATM F101X  Weather and Climate of Alaska  
- GEOG F307  Weather and Climate

¹ Fulfills the baccalaureate capstone requirement.
² These credits should have an emphasis in geology, geography, biology, natural resources management or other Earth science-related field as approved by the undergraduate advisor.
SECONDARY EDUCATION

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
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</tr>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
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Program Requirements

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<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOS F262</td>
<td>Rocks and Minerals</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F315</td>
<td>Paleobiology and Paleontology</td>
<td>4</td>
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<tr>
<td>GEOS F475</td>
<td>Presentation Techniques in the Geosciences</td>
<td>2</td>
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<tr>
<td>GEOS F497</td>
<td>Individual Study</td>
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</tr>
<tr>
<td>MSL F111X</td>
<td>The Oceans</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F175X</td>
<td>Introduction to Astronomy</td>
<td>4</td>
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</tbody>
</table>

Complete one course from each of the following areas: 14-17

Landform Analysis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
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<tr>
<td>GEOS F304</td>
<td>Geomorphology</td>
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</table>

Geospatial Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOS F225</td>
<td>Field and Computer Methods in Geology</td>
<td></td>
</tr>
<tr>
<td>GEOS F338</td>
<td>Introduction to Geographic Information Systems</td>
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</tbody>
</table>

Weather and Climate

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
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</tr>
<tr>
<td>GEOG F307</td>
<td>Weather and Climate</td>
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</table>

Natural Resources

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<tr>
<td>GEOG F302</td>
<td>Geography of Alaska</td>
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<td>GEOS F332</td>
<td>Ore Deposits and Structure</td>
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Evolutionary Processes

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<tr>
<td>GEOS F309</td>
<td>Tectonics</td>
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<tr>
<td>GEOS F485</td>
<td>Mass Extinctions, Neocatastrophism and the History of Life</td>
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</tr>
<tr>
<td>GEOS F486</td>
<td>Vertebrate Paleontology</td>
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</tbody>
</table>

Minor in secondary education (p. 195) 16

Additional requirements in secondary education licensure program (p. 195) 19

1 Fulfills the baccalaureate capstone requirement.

Note: We strongly recommend that prospective secondary science teachers seek advising from the Alaska College of Education early in their undergraduate degree program, so that they can be appropriately advised of the state of Alaska requirements for teacher licensure.
Teacher Education. For information about these programs, contact one of the UAF School of Education academic advisors.

Certification is awarded by the Alaska Department of Education and Early Development in Juneau. Therefore, students must meet all requirements specified by EED at the time of their application for the teaching certificate. In addition to completing an approved teacher training program, the State of Alaska requires that all initial applicants provide evidence of passing scores on one of various state identified skills tests; the UAF School of Education requires Praxis I or Praxis Core Academic Skills for Educators (ASE) for this purpose. For additional information, see the Alaska State Department of Education and Early Development website.

Degrees

- B.A. Degree, Elementary Education (K-8) (p. 191)
- B.A. Degree, Secondary Education (7-12) (p. 193)

Minors

- Minor, General Education (p. 194)
- Minor, Elementary Education (p. 194)
- Minor, Secondary Education (p. 195)

Licensure

- K-12 Art Licensure (p. 194)
- Secondary Postbaccalaureate Licensure Program (p. 195)

B.A., Elementary Education (K-8)

Students in the Bachelor of Arts in elementary education degree program are assessed relative to national and state standards, including National Council for Accreditation of Teacher Education standards, the Alaska Teacher Standards, the Alaska Student Content and Performance Standards, and the Alaska Standards for Culturally Responsive Schools. Course work provides students on the Fairbanks campus and in remote sites with the experience necessary to be eligible for an elementary teacher license. The integrated major/minor degree requirements are designed to prepare students to meet standards that recognize, respect and build upon Alaska’s cultural, linguistic and geographic factors. Completion of the B.A. in education will meet the requirements for a major and minor.

The interdisciplinary degree requirements provide breadth in the content areas necessary for successful teaching at an elementary level. They provide depth in the opportunities to connect theory and practice in real classroom, school, and community contexts. Students completing this degree benefit from collaborative efforts with academic departments across campus and from School of Education partnerships with a wide range of Alaska’s rural and urban schools and districts.

The degree has four central components:

1. subject area course work in the designated UAF general education requirements;
2. additional subject area course work in those areas important for successful teaching at an elementary level;
3. an integrated set of education courses and fieldwork in schools and the community to provide the foundation for a successful professional internship year; and
4. a capstone year-long school internship with a mentor teacher, with concurrent enrollment in professional course work that focuses on the integration and application of theory, research and practice in real school environments. Students follow the calendar of the school or district in which they complete their internship. Candidates serving internships are charged a $400 fee per semester.

Degree and program requirements include multiple types of on-going assessments throughout the programs. There is a strong emphasis on performance assessment and portfolio development and evaluation relative to national and state standards.

B.A. in elementary education students should enroll in the School of Education’s recommended sequence of core and major course requirements during their first two years. By following the sequence recommended in Transition One (see School of Education (p. 190) website), students will be knowledgeable about their status relative to their progress toward meeting the criteria for admission to the professional internship year. To make certain that students will be able to receive the support necessary to prepare for the internship year, all B.A. in elementary education students are required to submit Praxis I or Praxis ASE scores (passing scores are not required until applying to the internship year) to the School of Education prior to enrolling in EDSE F316, and Praxis II (test 5018) test scores must be submitted with the intern year admission packet. Prior to enrollment in professional-year courses and prior to receiving an internship placement in a classroom, all students must submit the materials listed below and meet admission requirements as described in Transition Two. Declaring a B.A. major in elementary education does not guarantee admission to the professional internship year.

Internships begin in August or September on the date when teachers return to school (this varies across districts). Since internship placements are arranged with principals and mentor teachers in the spring, all materials necessary for determining admission to the School of Education must be submitted by Feb. 1. Faculty in the School of Education consider multiple criteria in making valid and reliable judgments about each applicant’s knowledge, skills and professional characteristics prior to approval for the yearlong internship in a classroom with elementary school-age children.

Students must submit the following information to the School of Education by Feb. 1:

1. Copies of transcripts from all institutions attended. Evidence of plan of completion of all B.A. degree in elementary education degree courses by Aug. 1 (except for those required in the professional internship year), with a minimum of a 2.75 overall GPA, a 2.0 in each major academic area, and a C or better in all required courses. Students with less than a 2.75 overall GPA may be considered for conditional admission in special circumstances.
2. Official copies of ACT or SAT scores.
3. Alaska Passing scores from the Praxis I or Praxis Core ASE exams in reading, writing and math, and Praxis II exam (test 5018).
4. Two letters of reference that address qualifications and potential as a teacher.
5. A current and complete resume/curriculum vitae.
6. Two one-page essays on topics determined by the School of Education.
7. Completed Elementary Teacher Education Academic Analysis and Life/Work Form to provide information on breadth and depth of prior
course work and/or documented life experiences relative to ten Alaska Student Content Standard areas.

8. A one-to-two-page autobiographical sketch (appropriate for presenting to prospective principals and mentor teachers).

9. Extemporaneous writing sample. Contact the School of Education advising office for date, time and location information.

10. Evidence of successful experiences in teaching and learning situations.

11. Evidence of ability to work collaboratively and respectfully in cross-cultural contexts.

12. Completed Alaska Student Teacher Authorization Packet, including fingerprint cards and criminal background check. Forms are available from the School of Education.

13. Complete an interview, when requested.

14. Some school districts may require interns to pass a general physical exam and require additional shot records.

**Note:** Students are admitted for a specific academic year and must reapply if they do not enroll in the year in which they were reviewed.

**Minimum Requirements for Degree: 121 credits**

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A. Degree and Program Requirements</td>
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<tr>
<td>Mathematics Requirements</td>
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<tr>
<td>MATH F211</td>
<td>Mathematics for Elementary School Teachers</td>
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<tr>
<td>MATH F212</td>
<td>Mathematics for Elementary School Teachers II</td>
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<tr>
<td>Science Requirement</td>
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<tr>
<td>Complete one of the following:</td>
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<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
<td></td>
</tr>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
<td></td>
</tr>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td></td>
</tr>
<tr>
<td>GEOS F120X</td>
<td>Glaciers, Earthquakes and Volcanoes: Past, Present and Future</td>
<td></td>
</tr>
<tr>
<td>MSL F111X</td>
<td>The Oceans</td>
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<td>Social Sciences Requirements</td>
<td></td>
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<td>ED/PSY F245</td>
<td>Child Development</td>
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<td>HIST F131</td>
<td>History of the U.S.</td>
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<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
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<td>Complete one of the following:</td>
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<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
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<tr>
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<td>Native Cultures of Alaska</td>
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<td>HIST F461</td>
<td>History of Alaska</td>
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<td>HIST F115</td>
<td>Alaska, Land and Its People</td>
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<td>Humanities Requirements</td>
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<tr>
<td>ED/LING F100</td>
<td>Language, Education, Linguistics</td>
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<tr>
<td>or LING F101X</td>
<td>Nature of Language</td>
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<td>ED F486</td>
<td>Media Literacy</td>
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<td>Education Requirements</td>
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<tr>
<td>ED F110</td>
<td>Becoming a Teacher in the 21st Century</td>
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<tr>
<td>ED F201</td>
<td>Introduction to Education</td>
<td>3</td>
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<tr>
<td>ED F204</td>
<td>Literature for Children</td>
<td>3</td>
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<tr>
<td>ED F329</td>
<td>Teaching with Technology</td>
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<td>ED F330</td>
<td>Assessment of Learning</td>
<td>3</td>
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<tr>
<td>ED F344</td>
<td>Foundations of Literacy Development</td>
<td>3</td>
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<tr>
<td>EDSE F316</td>
<td>Introduction to Special Education for Elementary Classroom Teachers</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F320</td>
<td>Adapting and Accommodating Instructions for Students with Disabilities</td>
<td>3</td>
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<tr>
<td>Complete one of the following:</td>
<td>3</td>
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<tr>
<td>ED/ANS F420</td>
<td>Alaska Native Education</td>
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<tr>
<td>ED/ANS F461</td>
<td>Native Ways of Knowing</td>
<td></td>
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<tr>
<td>Professional Internship Year with Integrated Course Work</td>
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<tr>
<td>First Semester</td>
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<td></td>
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<tr>
<td>ED F411</td>
<td>Reading, Writing, Language Arts: Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F412</td>
<td>Integrated Social Studies and Language Arts: Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F466</td>
<td>Internship and Collaborative Student Teaching</td>
<td>3</td>
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</tbody>
</table>
ED F467  Classroom Management  2
    Communication and Collaboration I  2
ED F478  Mathematics Methods and Curriculum Development  3
ED F479  Science Methods and Curriculum Development  3

Second Semester
ED F414  Art, Music and Drama in Elementary Classrooms  3
ED F417  Physical and Health Education for Elementary Teachers  3
ED F468  Internship and Student Teaching  4
ED F469  Classroom Management  2
    Communication and Collaboration II  2
ED F476  Assessment of Literacy Development  1

1 Students should consult UAF SOE advisor.
2 Fulfills the baccalaureate capstone requirement.

B.A., Secondary Education (7-12)
The requirements for a secondary school teaching certificate include completion of both a teaching major in an academic subject area appropriate to the secondary school and the professional education sequence. The degree is awarded as a B.A. with a double major. Upon declaration of a major in secondary education, students are assigned an advisor in the Education Department to plan the completion of the teaching major and the education sequence of courses.

The teaching major must be in an academic subject area approved for a State of Alaska secondary school teaching certificate and available as a B.A. degree: art, biology, chemistry, earth science, English, French, German, history, mathematics, political science or Spanish.

Admission Requirements
Submit your undergraduate application electronically (https://uaf.edu/admissions/apply) to the UAF Office of Admissions. A professional student teaching internship application has to be turned in to the secondary program before student teaching (last year before graduation).

Professional Student Teaching Internship:
In the last year before graduation, student teaching internships begin in August or September on the date when teachers return to school (this varies across districts). Since internship placements are arranged with principals and mentor teachers in the spring, all materials necessary for determining admission to the internship should be submitted by Feb. 15.

Faculty in the School of Education consider multiple criteria in making valid and reliable judgments about each applicant’s knowledge, skills, and professional characteristics prior to approval for the year-long internship in a classroom with secondary children. A criminal background check is necessary to work in schools. Declaring a B.A. major in secondary education does not guarantee admission to the professional internship year.

Students must submit the following information before the student teaching internship year to the School of Education by Feb. 15:

1. Copies of transcripts from all institutions attended. Evidence of plan of completion of all B.A. degree in secondary education degree courses and completion of the majority of the content major requirements by Aug. 1st (except for those required in the professional internship year), with a minimum of a 2.75 overall GPA.
2. Three current letters of reference that address qualifications and potential as a teacher.
3. A personal statement of 500-800 words addressing motivation to enter the teaching profession, self-assessed qualifications to teach, and experiences which have prepared the candidate for teaching.
4. Official copies of ACT or SAT scores.
5. Passing scores on an Alaska Department of Education and Early Development-approved basic competency exam (BCE) http://education.alaska.gov/TeacherCertification/praxis.html
6. Passing scores on the Praxis II test for each content area the applicant expects to teach. The scores must meet the score set by the State of Alaska (https://education.alaska.gov/TeacherCertification/). World language applicants may need an oral proficiency test as required by EED.

Other Information:
Secondary faculty as part of the admission process will interview applicants.

Minimum Requirements for Degree: 121 credits
Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSC F110</td>
<td>Becoming a Middle/High School Teacher</td>
<td>1</td>
</tr>
<tr>
<td>EDSC F407</td>
<td>Developing Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F458</td>
<td>Classroom Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F205 or EDSC F415</td>
<td>Introduction to Secondary Education Foundations of Modern Educational Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F316</td>
<td>Introduction to Special Education for Elementary Classroom Teachers</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F414</td>
<td>Learning, Development and Special Needs Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F422</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F482</td>
<td>Inclusive Classrooms for All Children</td>
<td></td>
</tr>
</tbody>
</table>

Professional Internship Year with Integrated Coursework
Complete one of the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSC F432</td>
<td>English/Language Arts Secondary Instruction and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F433</td>
<td>Mathematics Secondary Instruction and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F434</td>
<td>Science Secondary Instruction and Assessment</td>
<td>3</td>
</tr>
</tbody>
</table>
EDSC F435  Social Studies Secondary Instruction and Assessment  
EDSC F436  Art Secondary Instruction and Assessment  
EDSC F437  World Language Secondary Instruction and Assessment

Complete the following:

EDSC F442  Technology Applications in Education I 1  
EDSC F443  Technology Application in Education II 2  
EDSC F457  Multicultural Education and School-community Relations 4  
EDSC F471  Secondary Teaching: School Internship I and Seminar 2  
EDSC F472  Secondary Teaching: School Internship II and Seminar 6-9

Content Area

Complete requirements for a major in content area: art, biology, chemistry, Earth science, English, foreign language (French, German or Spanish), history, mathematics or political science.

Capstone Requirement

Complete baccalaureate capstone requirement as determined by the program.

1 Candidates must take the section or course that corresponds with their major teaching content area.
2 Fulfills the baccalaureate capstone requirement.

K-12 Art Licensure Program

Offered only in Fairbanks and Anchorage, this is an intensive, classroom-based K-12 art licensure program (34 credits) that prepares postbaccalaureate candidates for K-12 teaching positions. The program is specifically designed to prepare candidates to teach in multicultural settings in Alaska. The content will specifically identify and discuss current issues of art education and applying Alaska Content/Performance Standards and Frameworks as well as National Standards for Art Education.

At the end of the program, if students have successfully met all of the program requirements, they will be eligible to apply for an Alaska initial teaching license and will receive certificates of completion from UAF.

Candidates who enter the K-12 art licensure program are required to have use of/own a laptop computer before they begin their internship in the fall semester of their professional year.

Admission Process and Requirements

Applicants will follow the admission process and requirements listed in the catalog for the Secondary Postbaccalaureate Licensure Program (p. 195), with the exception that applicants must have a bachelor’s degree in art from an accredited university or college.

Program Requirements

Minimum Requirements for Licensure: 34 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F449</td>
<td>Elementary Art Methods</td>
<td>3</td>
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<tr>
<td>ED F452/ART F458</td>
<td>Elementary Internship</td>
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<td>ED F453/ART F459</td>
<td>Secondary Internship</td>
<td>6</td>
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<td>EDSC F414</td>
<td>Learning, Development and Special Needs Instruction</td>
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<tr>
<td>or EDSE F422</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td>3</td>
</tr>
<tr>
<td>or EDSE F482</td>
<td>Inclusive Classrooms for All Children</td>
<td></td>
</tr>
<tr>
<td>or EDSE F316</td>
<td>Introduction to Special Education for Elementary Classroom Teachers</td>
<td></td>
</tr>
<tr>
<td>EDSC F415</td>
<td>Foundations of Modern Educational Practice</td>
<td>3</td>
</tr>
<tr>
<td>or EDSC F205</td>
<td>Introduction to Secondary Education</td>
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</tr>
<tr>
<td>EDSC F436</td>
<td>Art Secondary Instruction and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F442</td>
<td>Technology Applications in Education I</td>
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<td>EDSC F443</td>
<td>Technology Application in Education II</td>
<td>2</td>
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<tr>
<td>EDSC F457</td>
<td>Multicultural Education and School-community Relations</td>
<td>4</td>
</tr>
<tr>
<td>EDSC F458</td>
<td>Classroom Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td>PSY F240</td>
<td>Psychology of Development</td>
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</tr>
<tr>
<td>or PSY F245</td>
<td>Child Development</td>
<td></td>
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</tbody>
</table>

Minor, Elementary Education

The elementary education minor is designed for students who intend to pursue a license in elementary education. Students who complete ED F110, ED F201, ED F330, ED F420 and EDSE F316 with grades of C or better will be allowed to substitute this sequence for ED F624, ED F625 and ED F626 in the postbaccalaureate elementary (K-8) licensure program at UAF.

Minimum Requirements for Minor: 19 credits

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ED F110</td>
<td>Becoming a Teacher in the 21st Century</td>
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</tr>
<tr>
<td>ED F201</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>ED F204</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>ED F330</td>
<td>Assessment of Learning</td>
<td>3</td>
</tr>
<tr>
<td>ED F420</td>
<td>Alaska Native Education</td>
<td>3</td>
</tr>
<tr>
<td>or ED F461</td>
<td>Native Ways of Knowing</td>
<td></td>
</tr>
<tr>
<td>EDSE F316</td>
<td>Introduction to Special Education for Elementary Classroom Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Practicum may be required in each education course.

Minor, General Education

The general education minor is designed for any student interested in education issues who does not intend to pursue a license in elementary or secondary education.

Minimum Requirements for Minor: 16 credits

Students must earn a C grade or better in each course.1
that addresses multicultural issues in general, and Alaska rural issues in particular, is contained specifically in EDSC F457, and is a fundamental component of the course work within the program. When funding is available, all secondary Fairbanks candidates participate in a rural practicum.

Student outcomes for the program are based on the Standards for Alaska's Teachers located at http://www.eed.state.ak.us/standards/pdf/teacher.pdf.

Students must apply to graduate with a certificate of completion through the Office of the Registrar, Graduation Services. At the end of the program, if students have successfully met all of the program requirements, they will be eligible to apply for an Alaska initial teaching license.

Candidates who enter the Secondary Postbaccalaureate Licensure program are required to have use of/own a laptop computer before they begin their internships in the fall semester of their professional year. Candidates are expected to be proficient in Windows Office software including, but not limited to, word processing, spreadsheets, and presentation software.

**Program Options**

**FAST-TRACK OPTION**

The fast-track option is an intensive three-semester program that allows candidates (one-year unpaid interns) to complete the secondary licensure program as full-time students in 12 months. Candidates take classes "summer-fall-spring." The academic year-long internship is completed during the fall and spring semesters.

**TWO-YEAR OPTION**

The two-year option allows candidates (two-year unpaid interns) to complete the secondary postbaccalaureate licensure program as part-time students over a period of 18-24 months. The last semester of the program requires full-time placement at a public school site.

**TEACHING-WHILE-TRAINING OPTION**

The teaching-while-training option is for candidates (teacher interns) who have secured a teaching position with an Alaska school district. Generally, this option is available only to those candidates in areas of teacher shortage. Candidates complete the secondary postbaccalaureate licensure program over a period of 24 months.

**PROFESSIONAL FIELD EXPERIENCES**

The secondary postbaccalaureate licensure program includes a comprehensive internship experience in an educational setting. Internship placements are arranged and supervised by university faculty in partnership with the principal and staff from the public school. University course work and classroom practice are closely linked and communication about performance in both the course work and classroom practice is shared among the partners. Internships follow the K-12 school year calendar and not the university academic year calendar.

Performance in the internship must meet stated competencies and individual outcomes. Performance evaluations determine the candidate's progress toward meeting the State of Alaska Standards for Alaska's Teacher and the International Society for Technology in Education's National Education Technology Standards and Performance Indicators for All Teachers and performance guidelines of Specialty Performance Organizations.
It is expected that candidates will demonstrate appropriate professional characteristics with respect to their actions, attitudes and performance. Teacher candidates are required to adhere to the characteristics of professionalism as published in the Secondary Postbaccalaureate Licensure Handbook and to abide by the State of Alaska Code of Ethics of the Education Profession. Unacceptable academic performance, an unprofessional attitude, unsatisfactory field reports, violation of professional ethics or other factors may result in removal from the field experience and denial of the Institutional Recommendation for teacher certification.

Internship placements are made in partnership with participating school districts, which may request additional information and/or preparation from candidates according to the district’s established policies and practices. Because cooperating districts also determine the number of placements available for candidates, placement may become competitive if the number of applicants exceeds the number of spaces. Districts also reserve the right to refuse or terminate placements when candidates do not meet a minimum standard of performance. Thus, while the university will make every effort to identify appropriate field experiences, admission to the secondary postbaccalaureate licensure program does not guarantee an internship placement.

### Admission Process and Requirements

Admission to the secondary postbaccalaureate licensure program includes meeting requirements of the UAF undergraduate admission process and of the School of Education.

Submit the following information electronically (https://uaf.edu/admissions/apply) to the UAF Office of Admissions:

1. UAF undergraduate application and application fee.
2. Official transcript of bachelor’s degree from accredited institution, minimum GPA of 2.75. Applicants who have attended more than one university should include transcripts from all universities.
3. Official copies of ACT or SAT test scores.
4. A personal statement of 500-800 words explaining your motivation for becoming a teacher. Describe how your academic qualifications and work experiences have prepared you for a career in teaching. Elaborate on your personal strengths, including your ability to work collaboratively with others. Describe your experiences with adolescents in instructional and supervisory capacities. Explain why you believe you can help young people of all cultures be successful in school.
5. A vitae/resume.
6. Three current letters of reference that address qualifications and potential as a teacher.

Submit the following information to the School of Education:

1. Passing scores on an Alaska Department of Education and Early Development approved basic competency exam (http://education.alaska.gov/TeacherCertification/praxis.html). SAT/ACT scores may fulfill the requirement.
2. Passing scores on the Praxis II test for each content area the applicant expects to teach. The scores must meet the score set by the State of Alaska (https://education.alaska.gov/TeacherCertification/). World language applicants may need an oral proficiency test as required by EED.

### Minimum Requirements for Licensure: 31 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>EDSC F407</td>
<td>Developing Literacy in the Content Areas</td>
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</tr>
<tr>
<td>EDSC F415</td>
<td>Foundations of Modern Educational Practice</td>
<td>3</td>
</tr>
<tr>
<td>or EDSC F205</td>
<td>Introduction to Secondary Education</td>
<td></td>
</tr>
<tr>
<td>EDSC F442</td>
<td>Technology Applications in Education I</td>
<td>1</td>
</tr>
<tr>
<td>EDSC F443</td>
<td>Technology Application in Education II</td>
<td>2</td>
</tr>
<tr>
<td>EDSC F457</td>
<td>Multicultural Education and School-Community Relations</td>
<td>4</td>
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<td>EDSC F458</td>
<td>Classroom Organization and Management</td>
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<td>EDSC F471</td>
<td>Secondary Teaching: School Internship I and Seminar</td>
<td>3</td>
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<tr>
<td>EDSC F472</td>
<td>Secondary Teaching: School Internship II and Seminar</td>
<td>6-9</td>
</tr>
</tbody>
</table>

Complete one from the following:

- [EDSC F471](#) Secondary Teaching: School Internship I and Seminar
- [EDSC F472](#) Secondary Teaching: School Internship II and Seminar

*Before student teaching teacher candidates will need to complete the Alaska Department of Education and Early Development student teaching authorization (fingerprint cards and criminal background check necessary to work in schools).*

### APPLICATION REVIEW PROCESS

Applications for admission are due March 1 (summer or fall admissions) and Oct. 15 (spring admissions). Reviews for admissions will be ongoing thereafter.

The secondary postbaccalaureate program is a selective teacher education program. Multiple measures are used to assess personal characteristics, communication skills and qualifications of the candidates preparing to teach.

### UPON ACCEPTANCE TO THE PROGRAM

The School of Education has a systematic procedure for monitoring the progress of education students from admission through completion of their professional education program to determine if they should continue the program, be advanced to the secondary teaching internship and eventually be recommended for a teaching license. In assessing candidate progress in knowledge, skills, and disposition, faculty will review grades, observations, faculty recommendations, demonstrated academic competence and recommendations from the appropriate professionals in the schools.

### Additional Information:

Secondary faculty will interview applicants as part of the admission process.

Evidence of content competency in one of the UAF-approved secondary endorsement areas is necessary. Endorsement areas for teacher certification include: art, biology, chemistry, Earth science, economics, English, French, German, history, mathematics, physics, political science and Spanish. Content competency can be established by:

- a) The applicant holds a degree in an approved secondary endorsement area or,
- b) Applicants who do not hold a degree in the academic content area that they expect to teach must have documentation of content competency (transcript analysis). Additional course work may be required.

* If you believe you can help young people of all cultures be successful in school. Explain why you believe you can help young people of all cultures be successful in school.

- Elaborate on your personal strengths, including your ability to work collaboratively with others. Describe your experiences with adolescents in instructional and supervisory capacities. Explain why you believe you can help young people of all cultures be successful in school.

- Three current letters of reference that address qualifications and potential as a teacher.

- Passing scores on the Praxis II test for each content area the applicant expects to teach. The scores must meet the score set by the State of Alaska (https://education.alaska.gov/TeacherCertification/). World language applicants may need an oral proficiency test as required by EED.

- Submit the following information electronically (https://uaf.edu/admissions/apply) to the UAF Office of Admissions:

  - **UAF undergraduate application and application fee.**
  - **Official transcript of bachelor’s degree from accredited institution, minimum GPA of 2.75. Applicants who have attended more than one university should include transcripts from all universities.**
  - **Official copies of ACT or SAT test scores.**
  - **A personal statement of 500-800 words explaining your motivation for becoming a teacher. Describe how your academic qualifications and work experiences have prepared you for a career in teaching. Elaborate on your personal strengths, including your ability to work collaboratively with others. Describe your experiences with adolescents in instructional and supervisory capacities. Explain why you believe you can help young people of all cultures be successful in school.**
  - **A vitae/resume.**
  - **Three current letters of reference that address qualifications and potential as a teacher.**

- Submit the following information to the School of Education:

  - **Passing scores on an Alaska Department of Education and Early Development approved basic competency exam (http://education.alaska.gov/TeacherCertification/praxis.html). SAT/ACT scores may fulfill the requirement.**
  - **Passing scores on the Praxis II test for each content area the applicant expects to teach. The scores must meet the score set by the State of Alaska (https://education.alaska.gov/TeacherCertification/). World language applicants may need an oral proficiency test as required by EED.**
Undergraduate research and design project opportunities are available at UAF in the areas of communications, radar, sonar and lidar remote sensing, instrumentation and microwave circuit design, electric power and energy systems, digital and computer engineering and nanotechnology. The Student Rocket Project brings electrical and computer engineering and mechanical engineering students together to build and launch rockets at the Poker Flat Research Range, the only university-affiliated rocket range in the country. This program offers real engineering experience as well as fellowships, paid internships and scholarships.

The curriculum is designed to ensure that fundamentals and specialized skills are acquired by the student. The program prepares engineers to enter practice upon graduation and provides the theoretical background for students entering graduate studies. Candidates for the B.S. degree are required to take the State of Alaska Fundamentals of Engineering Examination in their general field.

The faculty of the Electrical and Computer Engineering Department provide a positive learning environment that enables students to pursue their goals in an innovative program that is rigorous and challenging, and encourages innovation and creativity. This approach builds the foundation for the following program educational objectives.

1. Breadth: Graduates will utilize their broad education emphasizing electrical engineering to serve as the foundation for productive careers in the public or private sectors, graduate education, and lifelong learning.
2. Depth: Graduates will apply their understanding of the fundamental knowledge prerequisite for the practice of and/or advanced study in electrical engineering, including its scientific principles, rigorous analysis, and creative design. The BSEE program offers depth concentration areas in communications, computer engineering, and power and control.
3. Professional skills: Graduates will apply skills for clear communication, responsible teamwork, professional attitudes and ethics needed to succeed in the complex modern work environment.

These objectives serve the department, college and university missions by insuring that all graduates of the BSEE program have received a high quality, contemporary education that prepares them for rewarding careers in electrical engineering.

For more information about the Electrical Engineering Program mission, goals and educational objectives, visit http://cem.uaf.edu/ece/abet/.

**Degree**

- B.S., Electrical Engineering (p. 197)

### B.S., Electrical Engineering

**Concentrations:** Communications, Computer Engineering, Power and Control

**Minimum Requirements for Degree: 135 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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</tr>
</tbody>
</table>

**Electrical Engineering**

College of Engineering and Mines
Department of Electrical and Computer Engineering
907-474-7137
http://cem.uaf.edu/ece/

**B.S. Degree**

**Minimum Requirements for Degree: 135 credits**

The mission of the UAF Electrical and Computer Engineering Department is to offer the highest-quality contemporary education at the undergraduate and graduate levels and to perform research appropriate to the technical needs of the state of Alaska, the nation and the world.

Electrical and computing engineering encompasses telecommunications, electrical power generation, transmission and distribution, control systems, and computer applications and design. Electrical engineers can typically expect gainful employment in one or more of these areas after graduation.

Communication engineers design, build and operate communication devices and systems, including satellites, antennas, wireless devices and computer networks. Electric power engineers design and oversee the construction, installation and maintenance of electrical systems that provide light, heat and power. Power engineers are also instrumental in the development of systems using modern power electronic devices to control power generation and distribution and build electric drives. People trained in computer engineering automate businesses, factories, pipelines and refineries. They design control systems and computers that guide trains, planes and space vehicles. Electrical engineers design the integrated circuits and automatic control systems used in many areas of science and engineering. Process controls in the mining and petroleum industries are also largely the responsibility of the electrical and computer engineer.

Candidates must take the section or course that corresponds with their major teaching content areas.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
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<td>EDSC F433</td>
<td>Mathematics Secondary Instruction and Assessment</td>
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<td>Science Secondary Instruction and Assessment</td>
<td></td>
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<tr>
<td>EDSC F435</td>
<td>Social Studies Secondary Instruction and Assessment</td>
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<tr>
<td>EDSC F436</td>
<td>Art Secondary Instruction and Assessment</td>
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<tr>
<td>EDSC F437</td>
<td>World Language Secondary Instruction and Assessment</td>
<td></td>
</tr>
</tbody>
</table>

1. Candidates must take the section or course that corresponds with their major teaching content areas.
Complete the general university requirements. (p. 142)

**General Education Requirements**

Complete the general education requirements. (p. 145)

As part of the general education requirements, complete:

- CHEM F105X General Chemistry I
- CHEM F106X General Chemistry II
- or PHYS F213X Elementary Modern Physics
- MATH F251X Calculus I

**B.S. Degree Requirements**

Complete the B.S. degree requirements. (p. 154)

As part of the B.S. degree requirements, complete:

- MATH F252X Calculus II
- PHYS F211X General Physics I
- PHYS F212X General Physics II

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE F102</td>
<td>Introduction to Electrical and Computer Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EE F203</td>
<td>Electric Circuits</td>
<td>4</td>
</tr>
<tr>
<td>EE F204</td>
<td>Electrical Engineering Fundamentals II</td>
<td>4</td>
</tr>
<tr>
<td>EE F303</td>
<td>Electrical Machinery</td>
<td>4</td>
</tr>
<tr>
<td>EE F311</td>
<td>Engineering Electromagnetics I</td>
<td>3</td>
</tr>
<tr>
<td>EE F331</td>
<td>High-frequency Lab</td>
<td>1</td>
</tr>
<tr>
<td>EE F333</td>
<td>Electronic Devices</td>
<td>4</td>
</tr>
<tr>
<td>EE F334</td>
<td>Electronic Circuit Design</td>
<td>4</td>
</tr>
<tr>
<td>EE F343</td>
<td>Digital Systems Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td>EE F353</td>
<td>Circuit Theory</td>
<td>3</td>
</tr>
<tr>
<td>EE F354</td>
<td>Engineering Signal Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EE F471</td>
<td>Automatic Control</td>
<td>3</td>
</tr>
<tr>
<td>ES F101</td>
<td>Introduction to Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ES F201</td>
<td>Computer Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ES F208</td>
<td>Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ESM F450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
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<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
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</tbody>
</table>

**Approved EE elective**

- 3

**Approved EE design elective**

- 3-4

Complete one of the following approved engineering science electives:

- ES F331 Mechanics of Materials
- ES F341 Fluid Mechanics
- ES F346 Introduction to Thermodynamics
- ME F334 Elements of Material Science/Engineering

**Computer Engineering**

**Power and Control**

1. Mathematics elective to be chosen from the following advanced topics: linear algebra and matrices, probability and statistics, partial differential equations, numerical analysis, advanced calculus or complex variables.

2. EE F408, EE F444 or EE F464 may fulfill the baccalaureate capstone requirement. These courses may also fulfill approved electrical engineering electives.

**Concentrations**

**COMMUNICATIONS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE F412</td>
<td>Engineering Electromagnetics II</td>
<td>3</td>
</tr>
<tr>
<td>EE F432</td>
<td>Electromagnetics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>EE F461</td>
<td>Communication Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Complete the following approved engineering science electives:

- ES F331 Mechanics of Materials
- ES F341 Fluid Mechanics
- ES F346 Introduction to Thermodynamics
- ME F334 Elements of Material Science/Engineering

**COMPUTER ENGINEERING**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EE F443</td>
<td>Computer Engineering Analysis and Design</td>
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<tr>
<td>EE F451</td>
<td>Digital Signal Processing</td>
<td>4</td>
</tr>
<tr>
<td>EE F461</td>
<td>Communication Systems</td>
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</table>

**POWER AND CONTROL**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EE F404</td>
<td>Electrical Power Systems</td>
<td>4</td>
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<tr>
<td>EE F406</td>
<td>Electrical Power Engineering</td>
<td>4</td>
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Complete the following approved engineering science electives:

- ES F331 Mechanics of Materials
- ES F341 Fluid Mechanics
- ES F346 Introduction to Thermodynamics
- ME F334 Elements of Material Science/Engineering

**Concentrations**

**Communications**

- 11-12

**English**

College of Liberal Arts
Department of English
907-474-7193
B.A. Degree

Minimum Requirements for Degree: 120 credits

The B.A. in English at UAF provides training in rhetorical dexterity, critical acumen and creative ingenuity — habits of mind that develop alongside intellectual inquiries concerning the production and reception of literary and nonliterary texts. As effective creators and thoughtful consumers of print and digital information, students learn how to identify critical methods, analyze language in varying historical, cultural and institutional contexts, and employ research in writing and speaking for a professional audience in the humanities.

The department has a particular strength in creative writing; students will have the opportunity to attend lectures and workshops with respected visiting writers and scholars as well as resident faculty. Mindful of how language shapes problems, communities and environments, students are prepared for a variety of graduate programs and careers in diverse fields such as education, law and business.

Degree

- B.A., English (p. 199)

Minor

- Minor, English (p. 200)
- Minor, Creative Writing (p. 200)
- Minor, Ancient, Medieval and Early Modern Studies (p. 199)

B.A., English

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
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</tr>
<tr>
<td></td>
<td>B.A. Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
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<tr>
<td></td>
<td>Program Requirements</td>
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<tr>
<td>ENGL F310</td>
<td>Literary Criticism</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F301</td>
<td>Continental Literature in Translation: The Ancient World</td>
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<tr>
<td>ENGL F302</td>
<td>Continental Literature in Translation: Medieval and Renaissance</td>
<td></td>
</tr>
<tr>
<td>ENGL F306</td>
<td>Survey of American Literature: Beginnings to the Civil War</td>
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</tr>
<tr>
<td>ENGL F307</td>
<td>Survey of American Literature: Civil War to the Present</td>
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<tr>
<td>ENGL F308</td>
<td>Survey of British Literature: Beowulf to the Romantic Period</td>
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</tr>
<tr>
<td>ENGL F309</td>
<td>Survey of British Literature: Romantic Period to the Present</td>
<td></td>
</tr>
</tbody>
</table>

Complete one of the following:

ENGL F422  Shakespeare: History Plays and Tragedies
ENGL F425  Shakespeare: Comedies and Nondramatic Poetry

ENGL F301  Continental Literature in Translation: The Ancient World
ENGL F302  Continental Literature in Translation: Medieval and Renaissance
ENGL F306  Survey of American Literature: Beginnings to the Civil War
ENGL F307  Survey of American Literature: Civil War to the Present
ENGL F308  Survey of British Literature: Beowulf to the Romantic Period
ENGL F309  Survey of British Literature: Romantic Period to the Present

Complete one of the following:

ENGL F422  Shakespeare: History Plays and Tragedies
ENGL F425  Shakespeare: Comedies and Nondramatic Poetry

ENGL F317  Traditional English Grammar
ENGL F318  Modern English Grammar
ENGL F462  Applied English Linguistics
ENGL F472  History of the English Language

Complete one of the following:

ENGL F333  Women's Literature
ENGL F340  Contemporary Native American Literature
ENGL F341  Contemporary Alaska Native Literature
ENGL F347  Voices of Native American Peoples
ENGL F349  Narrative Art of Alaska Native Peoples (in English translation)
ENGL F360  Multiethnic Literatures of the United States
ENGL F380  Topics in Colonial and Postcolonial Literature
ENGL F433  Women, Gender and Sexuality in Language, Literature and Culture
ENGL F449  Northern and Environmental Literature

Complete one of the following:

ENGL F410  Studies in American Literature to 1900
ENGL F415  Studies in 17th- and 18th-Century British Literature
ENGL F420  Studies in Medieval and 16th-Century British Literature
ENGL F440  Studies in 20th- and 21st-Century British Literature
ENGL F450  Studies in 19th-Century British Literature
ENGL F455  Studies in 20th- and 21st-Century American Literature
ENGL F460  Studies in Comparative/World Literature

Complete one of the following:

ENGL F427  Topics in Film Studies
ENGL F435  Authors
ENGL F465  Genre
ENGL F482  Topics in Language and Literature
ENGL F485  Teaching Composition in the Schools

Three ENGL F300- and ENGL F400-level courses (at least one at the F400 level)

Complete the baccalaureate capstone requirement as determined by the program.

Minor, Ancient, Medieval and Early Modern Studies

The minor in ancient, medieval and early modern studies will provide students with a background in the Western tradition in disciplines that emphasizes key artistic, literary, philosophical, political, religious
and social movements in these time periods. Students will a better understanding of the workings and struggles, advancements and achievements, and conflicts and prejudices of these civilizations and cultures. The curriculum requires that students take classes in at least three fields of study and thereby ensures that students will engage in a well-rounded examination of these time periods.

**Minimum Requirements for Minor: 18 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>HUM F201X</td>
<td>Unity in the Arts</td>
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</table>

Complete five from the following: 15

Only two electives from the list can be from any one discipline.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F261X</td>
<td>History of World Art</td>
<td></td>
</tr>
<tr>
<td>ART F364</td>
<td>Italian Renaissance Art</td>
<td></td>
</tr>
<tr>
<td>ENGL F301</td>
<td>Continental Literature in Translation: The Ancient World</td>
<td></td>
</tr>
<tr>
<td>ENGL F302</td>
<td>Continental Literature in Translation: Medieval and Renaissance</td>
<td></td>
</tr>
<tr>
<td>ENGL F308</td>
<td>Survey of British Literature: Beowulf to the Romantic Period</td>
<td></td>
</tr>
<tr>
<td>ENGL F415</td>
<td>Studies in 17th- and 18th-Century British Literature</td>
<td></td>
</tr>
<tr>
<td>ENGL F420</td>
<td>Studies in Medieval and 16th-Century British Literature</td>
<td></td>
</tr>
<tr>
<td>ENGL F422</td>
<td>Shakespeare: History Plays and Tragedies</td>
<td></td>
</tr>
<tr>
<td>ENGL F425</td>
<td>Shakespeare: Comedies and Nondramatic Poetry</td>
<td></td>
</tr>
<tr>
<td>HIST F101</td>
<td>Western Civilization</td>
<td></td>
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<tr>
<td>HIST F401</td>
<td>Renaissance and Reformation Europe</td>
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<tr>
<td>HIST F402</td>
<td>Seventeenth- and Eighteenth-century Europe</td>
<td></td>
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<tr>
<td>MUS F221</td>
<td>History of Western Music</td>
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<tr>
<td>MUS F422</td>
<td>Music in the 17th and 18th Centuries</td>
<td></td>
</tr>
<tr>
<td>PHIL F351</td>
<td>History of Ancient Greek Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL F352</td>
<td>History of Modern Philosophy: Descartes to Kant</td>
<td></td>
</tr>
<tr>
<td>PHIL/PS F411</td>
<td>Classical Political Theory</td>
<td></td>
</tr>
<tr>
<td>PHIL/PS F412</td>
<td>Modern Political Theory</td>
<td></td>
</tr>
</tbody>
</table>

1. Course offered every two years.
2. Course offered every three years.

## Minor, Creative Writing

**Minimum Requirements for Minor: 15 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F377</td>
<td>Intermediate Creative Writing: Nonfiction</td>
<td></td>
</tr>
</tbody>
</table>

Complete two from the following: 6

| ENGL F470 | Topics in Creative Writing                      |         |
| ENGL F471 | Undergraduate Writers’ Workshop                 |         |
| ENGL F488 | Dramatic Writing                                |         |

## Minor, English

**Minimum Requirements for Minor: 18 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGL electives at the F300 level or above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL electives at the F400 level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Environmental Politics

College of Liberal Arts
Department of Political Science
907-474-7609
http://www.uaf.edu/polisci/

**Minor Only**

Students in the minor program in environmental politics explore the local, national and international contexts within which key decisions about the environment are made. Courses examine philosophical and theoretical perspectives on the environment; ways in which different countries address issues of resource development and environmental regulations; international environmental laws, treaties, and institutions; relationships between environmental protection and national security; relationships between politics and environmental science; and the effects of environmental concerns on the international political economy.

The minor may be used in conjunction with any B.A. degree program, including political science, or as an optional addition to any B.S. degree program. For further information, contact the Department of Political Science.

## Minor

- Minor, Environmental Politics (p. 200)

## Minor, Environmental Politics

**Minimum Requirements for Minor: 15 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
<td></td>
</tr>
</tbody>
</table>

Complete 12 elective political science credits from the following: 12

| PS F447 | U.S. Environmental Politics                    |         |
| PS F454 | International Law and the Environment           |         |
| PS F455 | Political Economy of the Global Environment     |         |
| PS F456 | Science, Technology and Politics                |         |
| PS F458 | Comparative Environmental Politics              |         |
Eskimo

College of Liberal Arts
Alaska Native Languages Program
907-474-7874
http://www.uaf.edu/anlc/

B.A. Degree

Minimum Requirements for Degree: 120 credits

Eskimo languages are spoken by far northern people from the northeastern tip of Siberia, across Alaska and Canada, to East Greenland. The Eskimo languages include the four Yupik languages of Alaska and Siberia as well as Inuit, the Alaska sector of which is called Inupiaq. In terms of population and numbers of speakers, Central Alaska Yup’ik is by far the largest Alaska Native language; Inupiaq is the second largest. Eskimo languages are the linguistic heritage of more than half of Alaska’s Native population.

Students who obtain a B.A. in Central Yup’ik or Inupiaq Eskimo may be employed as Native language instructors or language specialists for school districts or Native organizations. No other university in the United States offers a B.A. in Eskimo.

Students in linguistics or anthropology may want to complete a minor in Eskimo to add a distinctly Alaska emphasis to their education.

Degrees

- B.A., Inupiaq Eskimo (p. 201)
- B.A., Yup’ik Eskimo (p. 201)

Minor

- Minor, Eskimo (p. 202)

B.A., Inupiaq Eskimo

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANL F316</td>
<td>Alaska Native Languages: Indian Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANS/ENGL F349</td>
<td>Narrative Art of Alaska Native Peoples (in English translation)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F242</td>
<td>Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>INU F417</td>
<td>Advanced Inupiaq</td>
<td>3</td>
</tr>
<tr>
<td>HIST F110</td>
<td>History of Alaska Natives</td>
<td>3</td>
</tr>
<tr>
<td>LING/ED F303</td>
<td>Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>LING F318</td>
<td>Introduction to Phonetics and Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING F320</td>
<td>Introduction to Morphology</td>
<td>3</td>
</tr>
<tr>
<td>LING F410</td>
<td>Theory and Methods of Second Language Teaching</td>
<td>3</td>
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<tr>
<td>LING F430</td>
<td>Historical Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING F450</td>
<td>Language Policy and Planning</td>
<td>3</td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td>3</td>
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<tr>
<td>PS F263</td>
<td>Alaska Native Politics</td>
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</tbody>
</table>

Yup’ik course or approved course

1 Fulfills the baccalaureate capstone requirement.

B.A., Yup’ik Eskimo

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ANL F315</td>
<td>Alaska Native Languages: Eskimo-Aleut</td>
<td>3</td>
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<tr>
<td>LING F101X</td>
<td>Nature of Language</td>
<td>3</td>
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<tr>
<td>YUP F101X</td>
<td>Elementary Central Yup'ik</td>
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<td>YUP F102X</td>
<td>Elementary Central Yup’ik</td>
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<td>YUP F201</td>
<td>Intermediate Central Yup’ik</td>
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</tr>
<tr>
<td>YUP F202</td>
<td>Intermediate Central Yup’ik</td>
<td>3</td>
</tr>
<tr>
<td>YUP F301</td>
<td>Advanced Central Yup’ik</td>
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</tr>
<tr>
<td>YUP F415</td>
<td>Additional Topics in Advanced Yup’ik</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete two from the following: 6

- ANL F287 | Teaching Methods for Alaska Native Languages | 3 |
- ANL F316 | Alaska Native Languages: Indian Languages | 3 |
- ANS/ENGL F349 | Narrative Art of Alaska Native Peoples (in English translation) | 3 |
- ANTH F242 | Native Cultures of Alaska | 3 |
- HIST F110 | History of Alaska Natives | 3 |
- LING/ED F303 | Language Acquisition | 3 |

Code | Title | Credits | Min/Max

- ANL F287 | Teaching Methods for Alaska Native Languages | 3 | 3
- ANL F316 | Alaska Native Languages: Indian Languages | 3 | 3
- ANS/ENGL F349 | Narrative Art of Alaska Native Peoples (in English translation) | 3 | 3
- ANTH F242 | Native Cultures of Alaska | 3 | 3
- HIST F110 | History of Alaska Natives | 3 | 3
- LING/ED F303 | Language Acquisition | 3 | 3

1 Fulfills the baccalaureate capstone requirement.
Minor, Eskimo

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LING F318</td>
<td>Introduction to Phonetics and Phonology</td>
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<tr>
<td>LING F320</td>
<td>Introduction to Morphology</td>
<td></td>
</tr>
<tr>
<td>LING F430</td>
<td>Historical Linguistics</td>
<td></td>
</tr>
<tr>
<td>LING F450</td>
<td>Language Policy and Planning</td>
<td></td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
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</tr>
<tr>
<td>PS F263</td>
<td>Alaska Native Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inupiaq Eskimo course or approved course</td>
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</tr>
</tbody>
</table>

1 Fulfills the baccalaureate capstone requirement.

Minor, Ethnobotany

Minimum Requirements for Minor: 15 credits

Complete the following:

Complete Eskimo electives 15

Ethnobotany

College of Rural and Community Development
907-474-7143
http://www.bethel.uaf.edu

Minor Only

Minimum Requirements for Minor: 15 credits

The minor in ethnobotany provides students who have completed the ethnobotany certificate program with the opportunity to continue their studies and earn a baccalaureate degree focused on the relationship of plants and humans. It also provides students who are not in the EBOT certificate program with the option of fitting ethnobotany courses into their current DANSRD or other baccalaureate programs.

Minor

• Minor, Ethnobotany (p. 202)

Minor, Ethnobotany

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EBOT F100</td>
<td>Introduction to Ethnobotany</td>
<td>3</td>
</tr>
<tr>
<td>EBOT F200</td>
<td>Seminar in Ethnobotany</td>
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</tr>
<tr>
<td>EBOT F210</td>
<td>Ethical Wildcrafting</td>
<td>1</td>
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<td>EBOT F220</td>
<td>Ethnobotanical Techniques</td>
<td>2</td>
</tr>
<tr>
<td>EBOT F230</td>
<td>Ethnobotanical Chemistry</td>
<td>3-4</td>
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<tr>
<td>or EBOT F250</td>
<td>Applied Ethnobotany Fall</td>
<td></td>
</tr>
<tr>
<td>and EBOT F251</td>
<td>Applied Ethnobotany Spring</td>
<td></td>
</tr>
</tbody>
</table>

Complete 4-5 credits of advisor-approved elective courses at 200 level or higher, selected from related subject areas, including (but not limited to): ANL, ANS, ANTH, BIOL and RD.

Film and Performing Arts

College of Liberal Arts

Department of Theatre and Film
907-474-6590
http://www.uaf.edu/theatrefilm/

B.A. Degree

Minimum Requirements for Degree: 120 credits

The Theatre and Film Department teaches courses in media and performing arts, technology, theory and criticism. The department recognizes the importance of the role of the fine and performing arts within the humanities program of a liberal arts education. Courses in film and performing arts help develop students’ original, creative and critical thinking while developing mastery in technical or dramatic skills.

A degree in film and performing arts gives students a critical understanding of the history, theory and technologies of cinema, new media arts and theatre arts while giving them opportunities, tools and resources for careers in media and performing arts industries, to pursue graduate study, or become media or theatre artists. Students take a shared group of classes in performance, production design and filmmaking, and then choose either a film or theatre concentration.

Film concentration: Through an interdisciplinary approach to film and media studies, the program produces media-literate professionals who can play a leading role in an increasingly information-centered world where every profession will require skilled media creators. Film students have opportunities to produce their own creative, time-based content for a variety of multimedia applications. Emphasis is placed on the cultures, lifestyles and environments of Alaska and the North and the unique opportunities they afford for skilled media creators and artists.

Theatre concentration: Students become well-rounded and prepared artists who can contribute their design, technical and performance skills to stage and screen work. The theatre concentration emphasizes stage and screen practicum work, so students learn through hands-on experience on stage and screen sets. These experiences provide unique opportunities for creative expression and workforce development.

Classes and productions are open to film and performing arts majors, theatre or film minors, and students in other fields.

Degree

• B.A., Film and Performing Arts (p. 202)

Minor

• Minor, Film Studies (p. 203)
• Minor, Theatre (p. 203)

B.A., Film and Performing Arts

Concentrations: Film, Theatre

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

Complete the general university requirements. (p. 142) 1

Complete the general education requirements. (p. 145)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 150)

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLPA F121</td>
<td>Fundamentals of Acting</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F271</td>
<td>Film Set Production I</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F247</td>
<td>Introduction to Production Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentrations**

Complete one of the following concentrations: 30

- Film
- Theatre

1 To graduate, all students must complete 39 upper-division credits. Some of these will be covered by the upper-division required courses for the film and performing arts B.A., but not all of them. Film and performing arts students will need to take upper-division electives (in film and performing arts or other disciplines) to complete the upper-division requirement.

### Film

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLPA/COJO/ENGL F217X</td>
<td>Introduction to the Study of Film</td>
<td>3</td>
</tr>
<tr>
<td>FLPA/ART F231</td>
<td>Previsualization and Preproduction</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F258</td>
<td>Lights, Camera, Audio!</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F260/COJO F290</td>
<td>Digital Video Editing</td>
<td>3</td>
</tr>
<tr>
<td>FLPA/COJO F280</td>
<td>Video Storytelling</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F289</td>
<td>Reel Workshop/Review</td>
<td>0</td>
</tr>
<tr>
<td>and FLPA F389</td>
<td>and Reel Workshop/Review</td>
<td></td>
</tr>
<tr>
<td>and FLPA F489</td>
<td>and Reel Workshop/Review</td>
<td></td>
</tr>
<tr>
<td>FLPA F331</td>
<td>Directing Film/Video</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F403</td>
<td>Practicum in Film Production: FRAME 1</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F431</td>
<td>Film Set Production II 1</td>
<td>3</td>
</tr>
<tr>
<td>Complete one from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLPA F334</td>
<td>Movies and Films: Watching and Analyzing</td>
<td></td>
</tr>
<tr>
<td>FLPA/ANS F381</td>
<td>Indigenous World in Film</td>
<td></td>
</tr>
<tr>
<td>FLPA/ENGL F488</td>
<td>Dramatic Writing</td>
<td></td>
</tr>
<tr>
<td>or approved FLPA elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete two from the following:</td>
<td></td>
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</tr>
<tr>
<td>FLPA F310</td>
<td>Acting for the Camera</td>
<td></td>
</tr>
<tr>
<td>FLPA/ART F371</td>
<td>Digital Imaging</td>
<td></td>
</tr>
<tr>
<td>FLPA F418</td>
<td>Internship in Film Production</td>
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</tr>
<tr>
<td>FLPA F458</td>
<td>SFX Up Your Video</td>
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</tr>
<tr>
<td>or FLPA/ART F475</td>
<td>Digital Video Compositing</td>
<td></td>
</tr>
<tr>
<td>FLPA/ART/ANTH F460</td>
<td>Cross-cultural Filmmaking</td>
<td></td>
</tr>
<tr>
<td>FLPA/ART F472</td>
<td>3D Animation</td>
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</tr>
<tr>
<td>FLPA/COJO F480</td>
<td>Documentary Filmmaking</td>
<td></td>
</tr>
<tr>
<td>FLPA F481</td>
<td>Advanced Topics in Film or Stage Production</td>
<td></td>
</tr>
<tr>
<td>FLPA F498</td>
<td>Undergraduate Research</td>
<td></td>
</tr>
<tr>
<td>FLPA F499</td>
<td>Thesis Project 1</td>
<td></td>
</tr>
</tbody>
</table>

or approved FLPA elective 1 Fulfills the baccalaureate capstone requirement.

### Theatre

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLPA F190</td>
<td>Audition or Portfolio Review</td>
<td>0</td>
</tr>
<tr>
<td>and FLPA F191</td>
<td>Participation and Audition or Portfolio Review</td>
<td></td>
</tr>
<tr>
<td>FLPA F215X</td>
<td>Dramatic Literature and History</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F241</td>
<td>Basic Stagecraft</td>
<td>4</td>
</tr>
<tr>
<td>FLPA F290</td>
<td>Audition or Portfolio Review</td>
<td>0</td>
</tr>
<tr>
<td>and FLPA F291</td>
<td>Participation II and Audition or Portfolio Review</td>
<td></td>
</tr>
<tr>
<td>FLPA F310</td>
<td>Acting for the Camera</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 8 credits from the following, at least 3 of which must be FLPA F402:

- FLPA F401 Theatre Practicum: Performance
- FLPA F402 Theatre Practicum: Technical 1

Complete four from the following:

- FLPA F320 Acting II: Voice and Speech
- FLPA F321 Acting III: Movement
- FLPA F332 Stage Directing I
- FLPA F347 Lighting Design
- FLPA/ANS F361 Advanced Alaska Native Performance
- FLPA F423 Acting IV: Scene Study 1
- FLPA F481 Advanced Topics in Film or Stage Production
- FLPA/ENGL F488 Dramatic Writing
- FLPA F498 Undergraduate Research
- FLPA F499 Thesis Project 1

or approved FLPA elective 1 Fulfills the baccalaureate capstone requirement.

**Note:** FLPA film concentration majors cannot minor in film but may minor in theatre. FLPA theatre concentration majors cannot minor in theatre but may minor in film.

### Minor, Film Studies

**Minimum Requirements for Minor: 18 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLPA/ENG F217X</td>
<td>Introduction to the Study of Film</td>
<td>3</td>
</tr>
<tr>
<td>FLPA/ART F231</td>
<td>Previsualization and Preproduction</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F271</td>
<td>Film Set Production I</td>
<td>3</td>
</tr>
<tr>
<td>or FLPA/COJO F280</td>
<td>Video Storytelling</td>
<td></td>
</tr>
<tr>
<td>Department-approved electives</td>
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<td>9</td>
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</tbody>
</table>

### Minor, Theatre
Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLPA F121</td>
<td>Fundamentals of Acting</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F215X</td>
<td>Dramatic Literature and History</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F241</td>
<td>Basic Stagecraft</td>
<td>4</td>
</tr>
</tbody>
</table>

Complete the following:

- Department-approved electives 8

Fisheries and Ocean Sciences

College of Fisheries and Ocean Sciences
Fisheries Program
907-474-7289
http://www.uaf.edu/cfos/academics/

B.A., B.S. Degree

Minimum Requirements for Degrees: 120 credits

The undergraduate programs in fisheries offer students broad education and training, in the fields of fish and fisheries biology and ecology, marine biology and oceanography. In addition to rigorous scientific coursework, students work with professionals from local, state, federal, tribal, university and private organizations during a required internship or research project.

The B.S. degree in fisheries and ocean sciences prepares graduates to work as professionals in fisheries and ocean management, research, conservation, education, policy, and industry organizations. Typically, fisheries and ocean sciences graduates obtain employment with state, federal, provincial, Alaska Native, Native American, university and nongovernmental organizations in Alaska and throughout North America. The program also provides a solid foundation for graduate study for students contemplating careers in advanced research, management, administration and teaching.

The B.A. degree in fisheries prepares graduates to work as professionals in fishing and seafood processing, marketing and business industries, community and tribal development organizations, subsistence research and management, social sciences and other human dimensions of fisheries in Alaska and throughout North America. Typically, fisheries graduates with this degree obtain employment with fisheries governmental agencies and non-governmental organizations in the areas of fisheries business administration, policy, education, social science, rural development and extension. The program also provides a solid foundation for graduate study for students contemplating careers in advanced research, management, administration and teaching.

The undergraduate fisheries program is administered through the Fairbanks campus. Students have the option of completing their program in Fairbanks, Anchorage or Juneau, with many fisheries courses offered via distance education for students in outlying areas.

Degrees

- B.A., Fisheries (p. 204)
- B.S., Fisheries and Ocean Sciences (p. 205)

Minor

- Minor, Fisheries (p. 206)

B.A., Fisheries

Concentrations: Fisheries Business and Social Science, Rural and Community Development

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 142)</td>
<td>1</td>
</tr>
<tr>
<td>General Education Requirements</td>
<td>Complete the general education requirements. (p. 145)</td>
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</tr>
<tr>
<td>B.A. Degree Requirements</td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
<td></td>
</tr>
</tbody>
</table>

Program Requirements

- ENGL F314 Technical Writing 3
- or ENGL F414 Research Writing 3
- FISH F102 Fact or Fishin': Case Studies in Fisheries 1
- FISH F103 The Harvest of the Sea 2
- FISH F110 Fish and Fisheries in a Changing World 3
- FISH F261 Introduction to Fisheries Utilization 3
- FISH F288 Fish and Fisheries of Alaska 3
- FISH F487 Fisheries Management 3
- FISH F490 Experiential Learning: Fisheries Internship 1
- STAT F200X Elementary Statistics 3

Complete one of the following: 3

- FISH F411 Human Dimensions of Environmental Systems
- GEOG F312 People, Places and Environment: Principles of Human Geography 3
- SOC F440 Environmental Sociology 3

Concentrations

Complete one of the following concentrations: 21-24

- Fisheries Business and Social Science
- Rural and Community Development

1 To graduate, all students must complete 39 upper-division credits.
2 Fulfills the baccalaureate capstone requirement.
3 Students who take GEOG F312 or SOC F440 should be aware that these two courses require additional prerequisites that are not part of the Bachelor of Arts in fisheries degree program.

Concentrations

FISHERIES BUSINESS AND SOCIAL SCIENCE

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F403</td>
<td>Political Anthropology 1</td>
<td>3</td>
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<tr>
<td>or ANTH F428</td>
<td>Ecological Anthropology and Regional Sustainability</td>
<td></td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
<td>3-4</td>
</tr>
<tr>
<td>or BA F330</td>
<td>The Legal Environment of Business</td>
<td></td>
</tr>
<tr>
<td>or BA F343</td>
<td>Principles of Marketing</td>
<td></td>
</tr>
</tbody>
</table>
or BA F390  Organizational Theory and Behavior  3
ECON F235X  Introduction to Natural Resource Economics  3
FISH F340  Seafood Business  3
Complete one of the following:  3
HIST F411  Environmental History  3
NRM F407  Environmental Law  3
NRM F430  Resource Management Planning  3
Complete one of the following:  3
PS F447  U.S. Environmental Politics  3
PS F454  International Law and the Environment  3
PS F455  Political Economy of the Global Environment  3
PS F458  Comparative Environmental Politics  3
Complete one of the following:  3
ANTH F403  Cross-cultural Communication: Alaska Perspectives  3
Students who take ANTH F403 or ANS F401 should be aware that these two courses require additional prerequisites that are not part of the Bachelor of Arts in fisheries degree program.

RURAL AND COMMUNITY DEVELOPMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RD F300</td>
<td>Rural Development in a Global Perspective</td>
<td>3</td>
</tr>
<tr>
<td>RD F350</td>
<td>Community Research in Indigenous Contexts</td>
<td>3</td>
</tr>
<tr>
<td>RD F351</td>
<td>Strategic Planning and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>RD F352</td>
<td>Rural Development Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>RD F450</td>
<td>Managing Rural Projects and Programs</td>
<td>3</td>
</tr>
<tr>
<td>RD F475</td>
<td>Rural Development Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F428</td>
<td>Ecological Anthropology and Regional Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>RD F245</td>
<td>Fisheries and Marine Wildlife Development in Rural Alaska</td>
<td>3</td>
</tr>
<tr>
<td>RD F265</td>
<td>Perspectives on Subsistence in Alaska</td>
<td>3</td>
</tr>
</tbody>
</table>

B.S., Fisheries and Ocean Sciences

Concentrations: Fisheries Science, Ocean Sciences

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM F105X</td>
<td>Fundamentals of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>Fundamentals of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
<td>4</td>
</tr>
<tr>
<td>MATH F230X</td>
<td>Introduction to Natural Resource Economics</td>
<td>4</td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td>4</td>
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</table>

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
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<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
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</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
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As part of the B.S. degree requirements, complete:

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>BIOL F260</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
<td>4</td>
</tr>
<tr>
<td>FISH F102</td>
<td>Fact or Fishin': Case Studies in Fisheries</td>
<td>1</td>
</tr>
<tr>
<td>FISH F103</td>
<td>The Harvest of the Sea</td>
<td>2</td>
</tr>
<tr>
<td>FISH F110</td>
<td>Fish and Fisheries in a Changing World</td>
<td>3</td>
</tr>
<tr>
<td>FISH F315</td>
<td>Freshwater Fisheries Techniques</td>
<td>3</td>
</tr>
<tr>
<td>or FISH F414</td>
<td>Field Methods in Marine Ecology and Fisheries</td>
<td>3</td>
</tr>
<tr>
<td>or MSL F450</td>
<td>Marine Biology and Ecology Field Course</td>
<td>3</td>
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<tr>
<td>or MSL F456</td>
<td>Kelp Forest Ecology</td>
<td>3</td>
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<tr>
<td>MSL F211</td>
<td>Introduction to Marine Science I</td>
<td>3</td>
</tr>
<tr>
<td>MSL F212</td>
<td>Introduction to Marine Science II</td>
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<tr>
<td>MSL F213L</td>
<td>Marine Science Laboratory</td>
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<tr>
<td>PHYS F103X</td>
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<tr>
<td>or PHYS F115X</td>
<td>Physical Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>STAT F401</td>
<td>Regression and Analysis of Variance</td>
<td>4</td>
</tr>
<tr>
<td>or STAT F402</td>
<td>Scientific Sampling</td>
<td>4</td>
</tr>
<tr>
<td>or MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

Complete 9 credits of electives from fisheries, biology, marine sciences and limnology or natural resource management (of which at least 5 credits must be upper-division).

Complete 4 credits of electives from chemistry, geology or physics.
Note: Fisheries and ocean science majors are encouraged to reinforce their fisheries qualifications by earning a minor in a program related to fisheries and ocean sciences. Some examples are biology, fisheries (ocean sciences concentration only), marine science (fisheries science concentration only), business management, chemistry, economics, mathematics, natural resources management (animal science), Northern studies, statistics or wildlife.

<table>
<thead>
<tr>
<th>Concentrations</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FISHERIES SCIENCE</strong></td>
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<td></td>
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</tr>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FISH F261</td>
<td>Introduction to Fisheries Utilization</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FISH F288</td>
<td>Fish and Fisheries of Alaska</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FISH F411</td>
<td>Human Dimensions of Environmental Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or GEOG F312</td>
<td>People, Places and Environment: Principles of Human Geography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or SOC F440</td>
<td>Environmental Sociology</td>
<td></td>
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</tr>
<tr>
<td>FISH F425</td>
<td>Fish Ecology</td>
<td>3</td>
<td></td>
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<tr>
<td>or FISH F426</td>
<td>Behavioral Ecology of Fishes</td>
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<tr>
<td>or FISH F428</td>
<td>Physiological Ecology of Fishes</td>
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<td></td>
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<tr>
<td>or FISH F433</td>
<td>Pacific Salmon Life Histories</td>
<td></td>
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<tr>
<td>FISH F427</td>
<td>Ichthyology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>FISH F487</td>
<td>Fisheries Management</td>
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<td></td>
</tr>
<tr>
<td>Complete 4 credits of electives from chemistry, geology or physics.</td>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

1 Students who take GEOG F312 or SOC F440 should be aware that these two courses require additional prerequisites that are not part of the fisheries science concentration.

2 FISH F487 and MSL F499 will serve as the capstone course for fisheries science and ocean sciences concentrations, respectively.

**OCEAN SCIENCES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MSL F499</td>
<td>Senior Thesis</td>
<td>1</td>
</tr>
<tr>
<td>Complete 20 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSL F215</td>
<td>Marine Geological Drama and Undersea Catastrophes</td>
<td></td>
</tr>
<tr>
<td>MSL F216</td>
<td>The Oceans and Global Change</td>
<td></td>
</tr>
<tr>
<td>MSL F218</td>
<td>Astrobiology: Planets, Oceans and Life</td>
<td></td>
</tr>
<tr>
<td>MSL F220</td>
<td>Scientific Diving</td>
<td></td>
</tr>
<tr>
<td>MSL F305</td>
<td>Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>MSL F317</td>
<td>Introduction to Marine Mammal Biology</td>
<td></td>
</tr>
<tr>
<td>MSL F403</td>
<td>Estuaries Oceanography</td>
<td></td>
</tr>
<tr>
<td>MSL F411</td>
<td>Current Topics in Oceanographic Research</td>
<td></td>
</tr>
<tr>
<td>MSL F412</td>
<td>Early Life Histories of Marine Invertebrates</td>
<td></td>
</tr>
<tr>
<td>MSL F419</td>
<td>Concepts in Physical Oceanography</td>
<td></td>
</tr>
<tr>
<td>MSL F421</td>
<td>Field Course in Subtidal Studies</td>
<td></td>
</tr>
<tr>
<td>MSL F431</td>
<td>Polar Marine Science</td>
<td></td>
</tr>
<tr>
<td>MSL F440</td>
<td>Oceanography for Fisheries</td>
<td></td>
</tr>
<tr>
<td>MSL F449</td>
<td>Biological Oceanography</td>
<td></td>
</tr>
<tr>
<td>MSL F461</td>
<td>Chemical Oceanography</td>
<td></td>
</tr>
<tr>
<td>MSL F463</td>
<td>Chemical Coastal Processes</td>
<td></td>
</tr>
<tr>
<td>MSL F464</td>
<td>Ecological and Evolutionary Genomics</td>
<td></td>
</tr>
<tr>
<td>MSL F467</td>
<td>Introduction to Marine Macroalgae</td>
<td></td>
</tr>
<tr>
<td>MSL F492</td>
<td>Seminar</td>
<td></td>
</tr>
</tbody>
</table>

Additional electives to complete minimum credits required.

1 FISH F487 and MSL F499 will serve as the capstone course for fisheries science and ocean sciences concentrations, respectively.

**Minor, Fisheries**

**Concentrations:** Fisheries Science; Fisheries Business Administration and Economics; Fisheries Policy and Rural Development

**Minimum Requirements for Minor: 15 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISH F101</td>
<td>Introduction to Fisheries</td>
<td>3</td>
</tr>
<tr>
<td>or NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
<td></td>
</tr>
<tr>
<td>FISH F288</td>
<td>Fish and Fisheries of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>A least 6 additional credit hours designated FISH, with the exception of any FISH F492 courses</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Concentrations**

Complete at least 3 credit hours from one of the following concentrations:

- Fisheries Science
- Fisheries Business Administration and Economics
- Fisheries Policy and Rural Development

**Concentrations**

**FISHERIES SCIENCE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F305</td>
<td>Invertebrate Zoology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F441</td>
<td>Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F471</td>
<td>Population Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F472</td>
<td>Community Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F473</td>
<td>Limnology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F476</td>
<td>Ecosystem Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F483</td>
<td>Stream Ecology</td>
<td>3</td>
</tr>
<tr>
<td>NRM F370</td>
<td>Introduction to Watershed Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**FISHERIES BUSINESS ADMINISTRATION AND ECONOMICS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F262</td>
<td>Principles of Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F325</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F330</td>
<td>The Legal Environment of Business</td>
<td>4</td>
</tr>
</tbody>
</table>
Foreign language majors are encouraged to spend one or both semesters of their junior year in an exchange program appropriate to their language focus.

**Degree**

- B.A., Foreign Languages (p. 207)

**Minor**

- Minor, Foreign Languages (p. 208)

### B.A., Foreign Languages

**Concentrations: Two Languages, Single Language (French, German, Russian, Spanish)**

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

**Code** | **Title** | **Credits**
---|---|---
**General University Requirements**
Complete the general university requirements. (p. 142)

**General Education Requirements**
Complete the general education requirements. (p. 145)

**B.A. Degree and Program Requirements**
Complete the B.A. degree requirements. (p. 150)

**Complete the baccalaureate capstone requirement as determined by the program.**

**Concentrations**

Complete one of the following concentrations: 30-33

- Two languages
  - French, German, Russian or Spanish

Note: In addition to a first and second language, students should complete a well-defined minor related to their career goals. When choosing a minor it is highly recommended that students see an advisor as early as possible.

Note: Recommended background courses: LING F101X and LING F216X.

Note: F100-level language courses (which are preparatory to, but not part of the foreign language degree) may be counted toward fulfillment of general education requirements.

### Concentrations

#### TWO LANGUAGES

Complete the following:

- F200 level or above in the first language: French, German, Japanese, Russian or Spanish. 1
- F200 level or above in the second language: French, German, Japanese, Russian or Spanish.

1 These must include two F400-level courses in the target language taken in residence at UAF.
FRENCH, GERMAN, RUSSIAN OR SPANISH

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target language at the F200 level or above</td>
<td>30</td>
</tr>
</tbody>
</table>

1 These may include target language courses and/or courses taken in the target language on an approved study abroad program and up to 6 credits of advisor-approved electives from education or linguistics, but must include two F400-level courses in the target language taken in residence at UAF.

JAPANESE

See requirements under Japanese Studies major (p. 221).

Minor, Foreign Languages

Minimum Requirements for Minor: 15 credits

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foreign language credits at the F100 level or above</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Foreign language credits at the F200 level or above</td>
<td>12</td>
</tr>
</tbody>
</table>

General Science

College of Natural Science and Mathematics
Department of Physics
907-474-6108
http://www.uaf.edu/physics/

B.S. Degree

Minimum Requirements for Degree: 130 credits

The B.S. degree program in general science provides a broad background in the natural sciences. The program allows specialization in at least two disciplines within the natural sciences as well as an additional area of associated interest. This degree offers more breadth in the natural sciences than other degree programs and may be classified as an interdisciplinary degree.

Degree

- B.S., General Science (p. 208)

B.S., General Science

Minimum Requirements for Degree: 130 credits

Students must earn a C- grade or better in each course.

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.S. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.S. degree requirements. (p. 154)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL F115X Fundamentals of Biology I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL F116X Fundamentals of Biology II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>CHEM F105X General Chemistry I</td>
<td>4</td>
</tr>
</tbody>
</table>

CHEM F106X General Chemistry II | 4

GEOS F101X The Dynamic Earth | 4

GEOS F112X The History of Earth and Life | 4

MATH F151X College Algebra for Calculus | 4

MATH F152X Trigonometry | 3

MATH F251X Calculus I | 4

PHYS F103X College Physics I | 4

PHYS F104X College Physics II | 4

Complete one of the following by the start of the junior year:

Two majors

- One major and two minors

Complete one of the following:

Complete two minors, one of which must be in the natural sciences or mathematics, while the other may be selected from the following disciplines: anthropology, English, French, German, Spanish, Russian, history, political science or economics.

Complete the baccalaureate capstone requirement as determined by the program.

1 PHYS F211X, PHYS F212X and PHYS F213X may substitute for PHYS F103X and PHYS F104X. CHEM F212 may substitute for CHEM F105X and CHEM F106X.

2 Students do not need to take MATH F151X and MATH F152X if students complete MATH F251X with a C or better. Complete a B.S. degree mathematics elective for 3 credits if MATH F151X and MATH F152X are not taken.

3 General science students, after meeting with their general science advisor, should contact the head of the major/minor department as early as possible to determine course requirements in that discipline. These courses will be determined by the department head of the discipline and will reflect each student’s needs as well as the intent of the general science program.

4 Complete one major from the following: biological sciences, chemistry, geosciences, physics or mathematics. The major requires the completion of at least 20 credits in addition to the foundation courses in the discipline.

5 The major requires the completion of at least 20 credits in addition to the foundation courses in the discipline.

6 The minor must include 12 or more credits in addition to the foundation courses in that discipline.

Requirements for General Science Teachers (grades 7-12)

1. Complete all the requirements of the general science B.S.

2. If the student opts for one major and two minors, all must represent science or mathematics disciplines.

3. All prospective science teachers must complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PHIL F481 Philosophy of Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: We strongly recommend that prospective secondary science teachers seek advising from the Alaska College of Education early...
in their undergraduate degree program so they can be appropriately advised of the State of Alaska requirements for teacher licensure. Students will apply for admission to the Alaska College of Education’s postbaccalaureate teacher preparation program, a one-year intensive program, during their senior year.

**Geography**

College of Natural Science and Mathematics  
Department of Geosciences  
907-474-7565  
http://www.uaf.edu/geology/geography/

**B.A., B.S. Degrees**

Minimum Requirements for Degrees: 120 credits

Geography is a broad, holistic study of the interactions among various natural/environmental, political, cultural and economic systems, and how those interactions create the world we see today at both local and global scales. Geography takes a synthesizing and inherently interdisciplinary approach to develop an integrated understanding of climate change, resource development, energy use and conservation, geopolitics, sustainable development, assessment of natural and human-caused environmental hazards, land-use change, regional conflicts, and economic and political developments all over the world. Geography also provides the framework for the integration of existing and emerging technologies such as GIS, remote sensing and geo-visualization into a broad range of academic and professional fields.

The geography B.A. and B.S. degrees are built upon a group of required courses that gives students a firm grounding in the fundamental components of the discipline, including global geographic perspectives, geography of the earth’s natural systems, geography of human systems, geospatial sciences (GIS, remote sensing, geo-visualization), and the synthesis of these core perspectives through an integrating capstone experience.

Our students find work in such fields as geospatial sciences (GIS/remote sensing/cartography), regional planning, international relations, state and federal resource management, transportation planning, environmental impact assessment, tourism, and teaching. Many of our students go on to graduate study in geography, natural resources, environmental science or planning. The geography B.A. degree gives students a broad understanding of the interactions among the physical environments, economics, political events, and cultures of various regions of the world, and equips students with the ability to interpret contemporary geopolitical and environmental issues. The B.A. prepares students for careers in management, policy, teaching, field-based research, regional planning, and a variety of private sector careers. The B.A. also provides an excellent foundation for graduate studies in a wide range of academic disciplines.

B.A. students are encouraged to coordinate minors, electives and internships to develop further expertise within a chosen region or topic, to take advantage of the considerable topical and regional expertise found throughout the UAF community, and also to underscore the important role other disciplines play within the field of geography.

Three specialized concentrations are available to students pursuing the B.S. degree:

- environmental studies
- landscape analysis and climate change studies
- geospatial sciences

The environmental studies concentration provides the foundation for understanding interactions between natural and human systems, analysis of environmental issues from an interdisciplinary geographic perspective, a diverse technical and scientific approach to environmental issues, and the ability to design balanced solutions to environmental problems.

The landscape analysis and climate change studies concentration integrates and synthesizes courses in geography, climate, geologic and biological sciences, as well as geospatial sciences. Students gain a sound and interdisciplinary understanding of how environmental change influences landscape patterns and human activity and welfare on both spatial and temporal scales. Senior capstone and internship courses offer integrating capstone experiences, enabling students to apply what they have learned in real-world settings.

The geospatial sciences concentration emphasizes skills and practices in geographic information systems, remote sensing, geovisualization and analysis of spatial patterns. Courses in GIS, remote sensing, GPS, map design, spatial statistics and computer programming are integrated with the geography foundation curriculum and courses in the natural sciences.

**Degrees**

- B.A., Geography (p. 209)  
- B.S., Geography (p. 210)

**Minor**

- Minor, Geography (p. 212)  
- Minor, Geographic Information Systems (p. 212)

**B.A., Geography**

Minimum Requirements for Degree: 120 credits  
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions Program</td>
<td>3</td>
</tr>
</tbody>
</table>

**Program Requirements**

- GEOG F101X  
- GEOG F111X  
- GEOG F312  
- GEOG F490  
- NRM F338

**Regional Geography**

Minimum Requirements for Degrees: 120 credits
Complete two from the following: 6

GEOG F302 Geography of Alaska
GEOG F303 Geography of United States and Canada
GEOG F305 Geography of Europe
GEOG F306 Geography of Russia
GEOG F311 Geography of Asia
GEOG F410 Geography of the Pacific Rim
GEOG F427 Polar Geography

Physical Geography
Complete one of the following: 3-4

GEOG F307 Weather and Climate
GEOG F339 Maps and Landscape Analysis
GEOG F412 Geography of Climate and Environmental Change
GEOG F418 Biogeography
GEOG F460 The Dynamic Alaska Coastline

Human Geography
Complete one of the following: 3

GEOG F405 Political Geography
GEOG F420 Geopolitics of Energy
NRM F403 Environmental Decision-Making

Techniques
Complete one of the following: 3-4

GEOG F309 Digital Cartography and Geovisualization
GEOG F430 Google Earth and Neogeography
GEOG F483 Research Design, Writing and Presentation Methods
GEOS F422 Geoscience Applications of Remote Sensing
GEOS F458 Applications of GPS and GIS in Geophysics
NRM F366 Survey Research in Natural Resources Management
NRM F435 GIS Analysis

Geography Electives
Complete two courses from any of the above categories or other courses appropriate to the student’s chosen program of study 3

1 Students will tailor their program through course selection from the categories below in consultation with their advisor to focus on a subspecialty such as Alaska, the circumpolar North, Europe, Asia, or other region or topic of their choice.
2 Fulfills the baccalaureate capstone requirement.
3 Both courses must be at F300 level or higher and approved by the student's advisor.

Note: Geography majors are encouraged to reinforce their program focus with a minor in one of the following areas: Alaska Native studies, anthropology, Asian studies, economics, environmental politics, foreign languages, geology, geophysics, global studies, history, journalism, natural resource management, Northern studies, political science and rural development.

Note: Students and faculty advisors should carefully review prerequisites for courses outlined in each required and/or optional area. Some courses require successful completion of up to three prerequisite courses. Therefore, students and faculty should note that while the minimum degree credit hours are 120, the actual number of required course credits may exceed that number.

B.S., Geography

Concentrations: Environmental Studies, Landscape Analysis and Climate Change Studies, and Geospatial Sciences

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

Code Title Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
<td>4</td>
</tr>
<tr>
<td>GEOG F312</td>
<td>People, Places and Environment: Principles of Human Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td>3</td>
</tr>
<tr>
<td>GEOG F490</td>
<td>Geography Seminar</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F488</td>
<td>Undergraduate Research</td>
<td>1-3</td>
</tr>
<tr>
<td>or GEOG F300</td>
<td>Internship in Geography</td>
<td></td>
</tr>
<tr>
<td>NRM F338</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentrations

Complete one of the following concentrations: 30-56

Environmental Studies
Landscape Analysis and Climate Change Studies
Geospatial Sciences

1 Completion of these three courses will fulfill the baccalaureate capstone requirement.

Concentrations

ENVIRONMENTAL STUDIES

Code Title Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
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</tbody>
</table>
As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td></td>
</tr>
</tbody>
</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F207</td>
<td>Research Methods and Statistics in Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG F307</td>
<td>Weather and Climate</td>
<td>3</td>
</tr>
<tr>
<td>GEOG F339</td>
<td>Maps and Landscape Analysis</td>
<td>4</td>
</tr>
<tr>
<td>GEOG F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete two from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F412</td>
<td>Geography of Climate and Environmental Change</td>
<td>6</td>
</tr>
<tr>
<td>GEOG F488</td>
<td>Geographic Assessment and Prediction of Natural Hazards</td>
<td></td>
</tr>
<tr>
<td>NRM F403</td>
<td>Environmental Decision-Making</td>
<td></td>
</tr>
<tr>
<td>NRM F407</td>
<td>Environmental Law</td>
<td></td>
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</table>

Complete three from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
<td>9</td>
</tr>
<tr>
<td>GEOG F418</td>
<td>Biogeography</td>
<td></td>
</tr>
<tr>
<td>GEOG F460</td>
<td>The Dynamic Alaska Coastline</td>
<td></td>
</tr>
<tr>
<td>GEOS F304</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>NRM F277</td>
<td>Introduction to Conservation Biology</td>
<td></td>
</tr>
<tr>
<td>NRM F380</td>
<td>Soils and the Environment</td>
<td></td>
</tr>
</tbody>
</table>

Complete one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F365</td>
<td>Principles of Outdoor Recreation Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM F370</td>
<td>Introduction to Watershed Management</td>
<td></td>
</tr>
<tr>
<td>NRM F430</td>
<td>Resource Management Planning</td>
<td></td>
</tr>
<tr>
<td>NRM F464</td>
<td>Wilderness Management</td>
<td></td>
</tr>
<tr>
<td>NRM F480</td>
<td>Soil Management for Quality and Conservation</td>
<td></td>
</tr>
</tbody>
</table>

Complete two from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F427</td>
<td>Polar Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG F460</td>
<td>The Dynamic Alaska Coastline</td>
<td></td>
</tr>
<tr>
<td>GEOG F478</td>
<td>Ice Age Alaska</td>
<td></td>
</tr>
<tr>
<td>GEOS F477</td>
<td>Ice in the Climate System</td>
<td></td>
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Complete two from the following:

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<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>GEOG F207</td>
<td>Research Methods and Statistics in Geography</td>
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<td>GEOG F309</td>
<td>Digital Cartography and Geovisualization</td>
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</tr>
<tr>
<td>GEOS F422</td>
<td>Geoscience Applications of Remote Sensing</td>
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</tr>
<tr>
<td>GEOS F458</td>
<td>Applications of GPS and GIS in Geophysics</td>
<td></td>
</tr>
<tr>
<td>NRM F435</td>
<td>GIS Analysis</td>
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**GEOSPATIAL SCIENCES**

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<tr>
<td>CS F103</td>
<td>Introduction to Computer Programming</td>
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</tr>
<tr>
<td>GEOG F207</td>
<td>Research Methods and Statistics in Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG F339</td>
<td>Maps and Landscape Analysis</td>
<td></td>
</tr>
<tr>
<td>GEOS F422</td>
<td>Geoscience Applications of Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOS F458</td>
<td>Applications of GPS and GIS in Geophysics</td>
<td></td>
</tr>
<tr>
<td>NRM F435</td>
<td>GIS Analysis</td>
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Complete one of the following:

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<tr>
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<tbody>
<tr>
<td>NRM F369</td>
<td>Principles of Outdoor Recreation Management</td>
<td>3</td>
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<tr>
<td>NRM F370</td>
<td>Introduction to Watershed Management</td>
<td></td>
</tr>
<tr>
<td>NRM F430</td>
<td>Resource Management Planning</td>
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<tr>
<td>NRM F464</td>
<td>Wilderness Management</td>
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<td>NRM F480</td>
<td>Soil Management for Quality and Conservation</td>
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<table>
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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>GE F371</td>
<td>Remote Sensing for Engineering</td>
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<tr>
<td>GE F376</td>
<td>GIS Applications in Geological and Environmental Engineering</td>
<td></td>
</tr>
<tr>
<td>GEOG F309</td>
<td>Digital Cartography and Geovisualization</td>
<td></td>
</tr>
<tr>
<td>GEOS F436</td>
<td>Beyond the Mouse: Computer Programming and Automation for Geoscientists</td>
<td></td>
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<tr>
<td>GEOS F458</td>
<td>Applications of GPS and GIS in Geophysics</td>
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<tr>
<td>NRM F369</td>
<td>GIS and Remote Sensing for Natural Resources</td>
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<tr>
<td>NRM F638</td>
<td>GIS Programming</td>
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<tr>
<td>NRM F641</td>
<td>Natural Resource Applications of Remote Sensing</td>
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<tr>
<td>GEOG F427</td>
<td>Polar Geography</td>
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</tr>
<tr>
<td>GEOG F460</td>
<td>The Dynamic Alaska Coastline</td>
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<tr>
<td>GEOG F478</td>
<td>Ice Age Alaska</td>
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**LANDSCAPE ANALYSIS AND CLIMATE CHANGE STUDIES**

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
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<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
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**Program Requirements**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>GEOG F412</td>
<td>Geography of Climate and Environmental Change</td>
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<td>ATM F456</td>
<td>Climate and Climate Change</td>
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Complete three from the following:

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<td>GEOS F304</td>
<td>Geomorphology</td>
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Complete two from the following:

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<td>GEOG F427</td>
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<tr>
<td>GEOG F460</td>
<td>The Dynamic Alaska Coastline</td>
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</tr>
<tr>
<td>GEOG F478</td>
<td>Ice Age Alaska</td>
<td></td>
</tr>
</tbody>
</table>
1. Graduate-level credit used to complete this undergraduate degree program may NOT be applied towards future graduate degree programs.

Note: Students and faculty advisors should carefully review prerequisites for courses outlined in each required and/or optional area. Some courses require successful completion of up to three prerequisite courses. Therefore, while students and faculty should note minimum degree credit hours are 120, the actual number of required course credits may exceed that number.

Minor, Geographic Information Systems

Minimum Requirements for Minor: 15 credits
Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
<td>12-15</td>
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<td>GEOG F309</td>
<td>Digital Cartography and Geovisualization</td>
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<td>GEOG F339</td>
<td>Maps and Landscape Analysis</td>
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<tr>
<td>GEOG F460</td>
<td>The Dynamic Alaska Coastline</td>
<td></td>
</tr>
<tr>
<td>GEOS F422</td>
<td>Geoscience Applications of Remote Sensing</td>
<td></td>
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<tr>
<td>GEOS F458</td>
<td>Applications of GPS and GIS in Geophysics</td>
<td></td>
</tr>
<tr>
<td>NRM F338</td>
<td>Introduction to Geographic Information Systems</td>
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<tr>
<td>GEOG F300</td>
<td>Internship in Geography</td>
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<tr>
<td>GEOG F430</td>
<td>Google Earth and Neogeography</td>
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<tr>
<td>GEOS F488</td>
<td>Undergraduate Research</td>
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<tr>
<td>NRM F369</td>
<td>GIS and Remote Sensing for Natural Resources</td>
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<tr>
<td>NRM F435</td>
<td>GIS Analysis</td>
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</table>

Minor, Geography

Minimum Requirements for Minor: 16 credits
Students must earn a C- grade or better in each course.

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<th>Title</th>
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<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
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<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
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<tr>
<td>GEOG electives</td>
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</tbody>
</table>

B.S. Degree

Minimum Requirements for Degree: 133 credits

The mission of the geological engineering program is to advance and disseminate knowledge related to mineral and energy exploration, evaluation, development and production; engineering site selection, construction and construction material production; and groundwater and geo-environmental engineering including geologic hazards assessment, through creative teaching, research and public service with an emphasis on Alaska, the North and its diverse peoples.

Geological engineering deals with the application of geology in the environment. Properties of earth materials exploration activities, geophysical and geochemical prospecting, site investigations and engineering geology are all phases of geological engineering.

The program prepares students for employment with industry, consulting companies and government agencies.

The educational objectives of the geological engineering program are to produce:

1. Graduates who are employed in one of the following professional areas: mineral and energy exploration and development; geotechnical engineering; groundwater engineering; or geo-environmental engineering.
2. Graduates will possess technical knowledge required to meet the unique challenges of geological engineering problems germane to cold regions, especially Alaska.
3. Graduates will pursue life-long learning through continuing education opportunities, professional registration/certification, and/or graduate studies.

For more information about the geological engineering program mission, goals and educational objectives, visit http://cem.uaf.edu/mingeo/abet/.

Degree

- B.S., Geological Engineering (p. 212)

B.S., Geological Engineering

Minimum Requirements for Degree: 133 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
<td>3</td>
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<tr>
<td>GEOG F111X</td>
<td>Earth and Environment: Elements of Physical Geography</td>
<td>4</td>
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<td>GEOG electives</td>
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</table>

Geological Engineering

College of Engineering and Mines
Department of Mining and Geological Engineering
907-474-7388
http://cem.uaf.edu/mingeo/
Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ES F208</td>
<td>Mechanics</td>
<td>4</td>
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<tr>
<td>ES F331</td>
<td>Mechanics of Materials</td>
<td>3</td>
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<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
<td>4</td>
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<tr>
<td>ES F346</td>
<td>Introduction to Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>GE F101</td>
<td>Introduction to Geological Engineering</td>
<td>1</td>
</tr>
<tr>
<td>GE F261</td>
<td>General Geology for Engineers</td>
<td>3</td>
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<td>GE F365</td>
<td>Geological Materials Engineering</td>
<td>3</td>
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<tr>
<td>GE F371</td>
<td>Remote Sensing for Engineering</td>
<td>3</td>
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<tr>
<td>GE F375</td>
<td>Principles of Engineering Geology and Terrain Analysis</td>
<td>3</td>
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<tr>
<td>GE F381</td>
<td>Field Methods and Applied Design I</td>
<td>2</td>
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<tr>
<td>GE F382</td>
<td>Field Methods and Applied Design II</td>
<td>4</td>
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<td>GE F405</td>
<td>Exploration Geophysics</td>
<td>3</td>
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<tr>
<td>GE F420</td>
<td>Subsurface Hydrology</td>
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<td>GE F480</td>
<td>Senior Design 1</td>
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<td>GEOS F213</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F214</td>
<td>Petrology and Petrography</td>
<td>4</td>
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<tr>
<td>GEOS F314</td>
<td>Structural Geology</td>
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<td>GEOS F320</td>
<td>Sedimentology for Geological Engineers</td>
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<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
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<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
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<tr>
<td>MIN F202</td>
<td>Mine Surveying</td>
<td>3</td>
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<tr>
<td>MIN F225</td>
<td>Quantitative Methods in Mining Engineering</td>
<td>2-3</td>
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<td>MIN F370</td>
<td>Rock Mechanics</td>
<td>3</td>
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<tr>
<td>MIN F408</td>
<td>Mineral Valuation and Economics</td>
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Technical Electives 2

Highly recommended technical electives:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CE F341</td>
<td>Environmental Engineering</td>
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<tr>
<td>CE F344</td>
<td>Water Resources Engineering</td>
</tr>
<tr>
<td>CE F422</td>
<td>Foundation Engineering</td>
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<tr>
<td>CE F424</td>
<td>Introduction to Permafrost Engineering</td>
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<tr>
<td>CE F442</td>
<td>Environmental Engineering Design</td>
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<td>CE F603</td>
<td>Arctic Engineering</td>
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<td>ESM F422</td>
<td>Engineering Decisions</td>
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<td>GE F322</td>
<td>Erosion Mechanics and Conservation</td>
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<tr>
<td>GE F376</td>
<td>GIS Applications in Geological and Environmental Engineering</td>
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<td>GE F384</td>
<td>Engineering Geology of Alaska</td>
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<td>GE F400</td>
<td>Geological Engineering Internship</td>
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<tr>
<td>GE F422</td>
<td>Soil Physics</td>
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<td>GE F430</td>
<td>Geomechanical Instrumentation</td>
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<td>GE F435</td>
<td>Exploration Design</td>
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<td>GE F440</td>
<td>Slope Stability</td>
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<tr>
<td>GE F441</td>
<td>Geohazard Analysis</td>
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<tr>
<td>GE F445</td>
<td>Design of Earth Dams and Embankments</td>
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<tr>
<td>GEOS F332</td>
<td>Ore Deposits and Structure</td>
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<tr>
<td>MIN F443</td>
<td>Principles and Applications of Industrial Explosives</td>
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<td>MIN F482</td>
<td>Computer-aided Mine Design:VULCAN</td>
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<td>NRM F435</td>
<td>GIS Analysis</td>
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<td>PETE F302</td>
<td>Well Logging</td>
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<td>PETE F407</td>
<td>Petroleum Production Engineering</td>
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<tr>
<td>PETE F426</td>
<td>Drilling Engineering</td>
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Fundamentals of Engineering (FE) Examination

Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

1 Fulfills the baccalaureate capstone requirement.
2 Technical elective credits must contain engineering design and be selected by the student from the list of approved technical electives from the geological engineering program in conference with the advisor and approved by the department.

Geoscience

College of Natural Science and Mathematics
Department of Geosciences
907-474-7565
http://www.uaf.edu/geology/

B.S. Degree

Minimum Requirements for Degree: 120 credits

Graduates in geoscience have broad backgrounds in the earth sciences and firm foundations in mathematics, physics and chemistry. Four concentrations are available to allow students to pursue their own emphasis:

- geology
- paleontology
- geospatial science
- geophysics

The concentrations allow students to focus early in their studies but are flexible enough to allow students to pursue their own interests in their junior and senior years. All the concentrations prepare students for industry jobs in oil, mining and environmental consulting; jobs with agencies such as the U.S. Geological Survey, NASA, the Alaska Division of Geological and Geophysical Surveys; or graduate studies.

The geology concentration offers students a sound background in a spectrum geological disciplines with an emphasis on current field mapping techniques essential to exploration and research. The paleontology concentration is designed to provide students with the skills necessary to locate, excavate, interpret and curate specimens for museums, agencies or universities. The geospatial sciences concentration focuses on the principles, techniques and applications of remote sensing, GIS and GPS to prepare students for careers that require geospatial data analysis and visualization. The geophysics concentration challenges students to use physics in understanding geoscience concepts, emphasizing applications in seismology, volcanology and glaciology in the context of the Alaska landscape. This concentration prepares students for graduate work in geophysics and environmental engineering fields or other disciplines that use geophysical tools such as ground-penetrating radar or exploration seismology.
Degree

- B.S., Geoscience (p. 214)

Minors

- Minor, Geology (p. 216)
- Minor, Paleontology (p. 216)
- Minor, Geospatial Sciences (p. 216)
- Minor, Geophysics (p. 216)

B.S., Geoscience

Concentrations: Geology, Paleontology, Geospatial Sciences and Geophysics

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
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<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
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<td>GEOS F213</td>
<td>Mineralogy</td>
<td>4</td>
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<tr>
<td>GEOS F214</td>
<td>Petrology and Petrography</td>
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<tr>
<td>GEOS F225</td>
<td>Field and Computer Methods in Geology</td>
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<td>GEOS F304</td>
<td>Geomorphology</td>
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<td>GEOS F314</td>
<td>Structural Geology</td>
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<td>GEOS F315</td>
<td>Paleobiology and Paleontology</td>
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<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
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<tr>
<td>STAT F200X</td>
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<tr>
<td>GEOS F317</td>
<td>Paleontological Research and Laboratory Methods</td>
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<td>GEOS F375</td>
<td>Oral Communication Skills for Geoscientists</td>
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<td>Geopolitics of Energy</td>
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<td>Polar Geography</td>
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<td>GEOG F483</td>
<td>Research Design, Writing and Presentation Methods</td>
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<td>GEOG F490</td>
<td>Geography Seminar</td>
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<td>GEOG F493</td>
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1. GEOS F454 is offered at UAF during the summer of odd-numbered years. Students may substitute a 6-credit field geology class at another institution. The geology and geophysics undergraduate advisor will assist students in placement in an approved field geology class.

2. Fulfills the baccalaureate capstone requirement.

PALEONTOLOGY

<table>
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<td>CHEM F106X</td>
<td>General Chemistry II</td>
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<td>PHYS F103X</td>
<td>College Physics I</td>
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<td>PHYS F104X</td>
<td>College Physics II</td>
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<td>Mineralogy</td>
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</tr>
<tr>
<td>GEOS F214</td>
<td>Petrology and Petrography</td>
<td>4</td>
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<tr>
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<td>Field and Computer Methods in Geology</td>
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<tr>
<td>GEOS F315</td>
<td>Paleobiology and Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F317</td>
<td>Paleontological Research and Laboratory Methods</td>
<td></td>
</tr>
<tr>
<td>GEOS F318</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
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</tr>
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<td>Field and Computer Methods in Geology</td>
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</tr>
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<td>STAT F200X</td>
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<td>Statistics</td>
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</tr>
<tr>
<td>GEOS F330</td>
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</tr>
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<td>Field Geology</td>
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</tr>
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<td>Field Geology, Paleontology</td>
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<tr>
<td>GEOS F485</td>
<td>Mass Extinctions, Neocatastrophism and the History of Life</td>
<td></td>
</tr>
<tr>
<td>GEOS F486</td>
<td>Vertebrate Paleontology</td>
<td></td>
</tr>
<tr>
<td>GEOS F488</td>
<td>Undergraduate Research</td>
<td></td>
</tr>
</tbody>
</table>

Complete the requirements for a minor in biological sciences 20
GEOS F454 is offered at UAF during the summer of odd-numbered years. Students may substitute a 6-credit field geology class at another institution. The geology and geophysics undergraduate advisor will assist students in placement in an approved field geology class.

2 Fulfills the baccalaureate capstone requirement.

### GEOSPATIAL SCIENCES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F104X</td>
<td>College Physics II</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F213</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F214</td>
<td>Petrology and Petrography</td>
<td>4</td>
</tr>
<tr>
<td>GEOS/GEOG F222</td>
<td>Fundamentals of Geospatial Science</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F225</td>
<td>Field and Computer Methods in Geology</td>
<td>2</td>
</tr>
<tr>
<td>GEOS F304</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F314</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F454</td>
<td>Field Geology, 1st and 2nd Courses</td>
<td>8</td>
</tr>
<tr>
<td>GEOS F430</td>
<td>Statistics and Data Analysis in Geology</td>
<td>3</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote sensing electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete at least two of the following:</td>
<td>4-7</td>
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<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>GEOS F408</td>
<td>Photogeology</td>
<td></td>
</tr>
<tr>
<td>GEOS F422</td>
<td>Geoscience Applications of Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOS F488</td>
<td>Undergraduate Research</td>
<td></td>
</tr>
<tr>
<td>NRM F641</td>
<td>Natural Resource Applications of Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GIS electives</td>
<td></td>
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</tr>
<tr>
<td>Complete at least two of the following:</td>
<td>6-7</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F309</td>
<td>Digital Cartography and Geovisualization</td>
<td></td>
</tr>
<tr>
<td>GEOG F435</td>
<td>GIS Analysis</td>
<td></td>
</tr>
<tr>
<td>GEOG F458</td>
<td>Applications of GPS and GIS in Geophysics</td>
<td></td>
</tr>
<tr>
<td>NRM F338</td>
<td>Introduction to Geographic Information Systems</td>
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</tr>
<tr>
<td>Complete 9 additional credits of upper-division GEOS courses or other upper-division courses approved by the undergraduate advisor including one course from the following:</td>
<td>9</td>
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</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F317</td>
<td>Paleontological Research and Laboratory Methods</td>
<td></td>
</tr>
<tr>
<td>GEOS F375</td>
<td>Oral Communication Skills for Geoscientists</td>
<td></td>
</tr>
<tr>
<td>GEOG F420</td>
<td>Geopolitics of Energy</td>
<td></td>
</tr>
<tr>
<td>GEOG F427</td>
<td>Polar Geography</td>
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</table>

### GEOPHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOS F262</td>
<td>Rocks and Minerals</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F375</td>
<td>Oral Communication Skills for Geoscientists</td>
<td></td>
</tr>
<tr>
<td>GEOS F406</td>
<td>Volcanology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F419</td>
<td>Solid Earth Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F431</td>
<td>Foundations of Geophysics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F477</td>
<td>Ice in the Climate System</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F488</td>
<td>Undergraduate Research</td>
<td>2</td>
</tr>
<tr>
<td>GEOS F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td></td>
</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH F314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td>8</td>
</tr>
<tr>
<td>and PHYS F212X</td>
<td>General Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS F213X</td>
<td>Elementary Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F220</td>
<td>Introduction to Computational Physics</td>
<td>4</td>
</tr>
<tr>
<td>Complete two of the following science and engineering electives or undergraduate advisor approved substitute:</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>Complete 6 additional credits of upper-division GEOS courses or other upper-division courses approved by the undergraduate advisor.</td>
<td></td>
<td></td>
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</tbody>
</table>
Global Studies
College of Liberal Arts
907-474-7231
http://www.uaf.edu/cla/

Minor Only
This interdisciplinary program enhances students' understanding of issues resulting from an increasingly interdependent world and giving students an opportunity to broaden their horizons beyond their chosen major and achieve a more integrated vision of contemporary global problems, alternative concepts of global society, and strategies for moving toward a more just and humane world order.

The program’s flexibility allows students, in consultation with their advisor, to select an array of courses and co-curricular experiences that best complement their majors as well as their goals for their careers and/or postbaccalaureate education.

Global studies students are encouraged to pursue opportunities for study abroad and foreign language acquisition as part of their minor requirements. Working with their advisor and the UAF Office of International Programs and Initiatives, global studies students may discover ways to build on their UAF course work and satisfy a significant portion of their global studies minor requirements at a foreign college or university.

Minor

- Minor, Global Studies (p. 216)

Minor, Global Studies

Minimum Requirements for Minor: 16-18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F245</td>
<td>Culture and Global Issues</td>
<td>3</td>
</tr>
<tr>
<td>COJO F201</td>
<td>Dispute Resolution and Restorative Practices</td>
<td></td>
</tr>
<tr>
<td>ENGL F218</td>
<td>Themes in Literature</td>
<td></td>
</tr>
<tr>
<td>ENGL F280</td>
<td>Introduction to Colonial and Postcolonial Literature</td>
<td></td>
</tr>
<tr>
<td>GEOG F203</td>
<td>World Economic Geography</td>
<td></td>
</tr>
<tr>
<td>LING F216X</td>
<td>Languages of the World</td>
<td></td>
</tr>
<tr>
<td>PS F202</td>
<td>Democracy and Global Society</td>
<td></td>
</tr>
</tbody>
</table>

Entry-level Course

Complete one of the following:

Program Requirements

Complete four from the following with no more than two courses (6 credits) from the same department:

- ANTH F315 Human Variation
- ANTH F428 Ecological Anthropology and Regional Sustainability
- ANTH/WGS F445 Gender in Cross-cultural Perspective
- ANTH F446 Economic Anthropology
- BIOL F476 Ecosystem Ecology
- COJO F330 Intercultural Communication
- COJO F353 Conflict, Mediation and Communication
- COJO F451 Cross-cultural Conflict Analysis and Intervention

Minor, Geology

Minimum Requirements for Minor: 20 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>Additional credits of GEOS courses as approved by the undergraduate geoscience advisor</td>
<td>12</td>
<td></td>
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</tbody>
</table>

Minor, Geophysics

Minimum Requirements for Minor: 21 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F406</td>
<td>Volcanology</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F419</td>
<td>Solid Earth Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F431</td>
<td>Foundations of Geophysics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F477</td>
<td>Ice in the Climate System</td>
<td>3</td>
</tr>
</tbody>
</table>

Minor, Geospatial Sciences

Minimum Requirements for Minor: 19 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>GEOS/GEOG F222</td>
<td>Fundamentals of Geospatial Science</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F225</td>
<td>Field and Computer Methods in Geology</td>
<td>2</td>
</tr>
<tr>
<td>GEOS F422</td>
<td>Geoscience Applications of Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F458</td>
<td>Applications of GPS and GIS in Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

Minor, Paleontology

Minimum Requirements for Minor: 16-20 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>Complete three from the following:</td>
<td>8-12</td>
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</tr>
<tr>
<td>GEOS F315</td>
<td>Paleobiology and Paleontology</td>
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</tr>
<tr>
<td>GEOS F317</td>
<td>Paleontological Research and Laboratory Methods</td>
<td></td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td></td>
</tr>
<tr>
<td>GEOS F453</td>
<td>Palynology and Paleopalynology</td>
<td></td>
</tr>
<tr>
<td>GEOS F485</td>
<td>Mass Extinctions, Neocatastrophism and the History of Life</td>
<td></td>
</tr>
<tr>
<td>GEOS F486</td>
<td>Vertebrate Paleontology</td>
<td></td>
</tr>
</tbody>
</table>

1 Fulfills the baccalaureate capstone requirement.
If you enjoy studying and researching major cultural, social, economic and political events of the past, then a B.A. in history may be for you. Through our program you will develop skills in oral and written presentation, research and critical thinking, and gain a greater awareness of the human condition. Our students also acquire an appreciation of the complexity of the discipline, an understanding that historical narratives are constructed, contested and always changing, and the recognition that there are varied perspectives on the past.

As liberal arts majors, history prepares students for a multitude of careers in the public, private and nonprofit sectors. History graduates may find work as educators, researchers and analysts, public relations representatives, advocates, and businessmen and -women.

### Degree
- B.A., History (p. 217)

### Minor
- Minor, History (p. 218)

## B.A., History

### Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST F100X</td>
<td>Modern World History</td>
<td>3</td>
</tr>
<tr>
<td>HIST F101</td>
<td>Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>HIST F102X</td>
<td>Western Civilization Since 1500</td>
<td>3</td>
</tr>
<tr>
<td>HIST F121</td>
<td>East Asian Civilization</td>
<td>3</td>
</tr>
<tr>
<td>HIST F122X</td>
<td>East Asian Civilization</td>
<td>3</td>
</tr>
<tr>
<td>HIST F131</td>
<td>History of the U.S.</td>
<td>3</td>
</tr>
<tr>
<td>HIST F132X</td>
<td>History of the U.S.</td>
<td>3</td>
</tr>
<tr>
<td>HIST F275</td>
<td>Perspectives on History</td>
<td>3</td>
</tr>
<tr>
<td>HIST F475</td>
<td>Historiography Capstone ²</td>
<td>3</td>
</tr>
<tr>
<td>HIST F476</td>
<td>Senior Thesis Capstone ²</td>
<td>3</td>
</tr>
</tbody>
</table>

### History

College of Liberal Arts  
Department of History  
907-474-7126  
http://www.uaf.edu/history/

### B.A. Degree

Minimum Requirements for Degree: 120 credits

The History Department prepares students to critically analyze and interpret cultural heritage, the great problems that have faced humans throughout history and how we have sought to solve them.
and advance their operational understanding of the highly integrated emergency management and homeland security environment of today.

**Degree**
- B.S.E.M., Homeland Security and Emergency Management (p. 218)

**Minors**
- Minor, Emergency Management (p. 219)
- Minor, Military Security Studies (p. 220)

**B.S.E.M., Homeland Security and Emergency Management**


**Minimum Requirements for Degree: 120 credits**
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S.E.M. Degree Requirements</td>
<td>Complete the general university requirements. (p. 142)</td>
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</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
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</tr>
<tr>
<td></td>
<td>B.S.E.M. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.S.E.M. degree requirements. (p. 156)</td>
<td></td>
</tr>
<tr>
<td>Program Requirements</td>
<td>A total of 21-33 credits of major requirements from UAF HSEM lower-division courses, or any regionally accredited institution with an AA, AS, AAS-T, AAS or certificate program within these subject areas: emergency/paramedical, environmental health and safety, fire science, law enforcement, network/cybersecurity, process technology, public safety or wildland fire, or commensurate military credit from the above subject areas as approved by the program director.</td>
<td>33</td>
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</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BA F457</td>
<td>Training and Management Development</td>
<td>3</td>
</tr>
<tr>
<td>HSEM/ACCT F271</td>
<td>Fiscal Management for Emergency Management Operations</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F301</td>
<td>Principles of Emergency Management and Homeland Security</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F412</td>
<td>Emergency Planning and Preparedness</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F423</td>
<td>Disaster Response Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F434</td>
<td>All-hazards Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F445</td>
<td>Business Continuity and Crisis Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F456</td>
<td>Leadership in Dangerous Contexts</td>
<td>3</td>
</tr>
<tr>
<td>URSA</td>
<td>Any course</td>
<td>12</td>
</tr>
</tbody>
</table>

1. These courses must be approved by an advisor.
2. Fulfills the baccalaureate capstone requirement.

**Note:** Students who are considering graduate work in history are strongly urged to take at least two years of a foreign language.

**Note:** History majors are strongly urged to consult with the History Department regarding the selection of a minor.

---

**Minor, History**

**Minimum Requirements for Minor: 18 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Complete the following:</td>
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<tr>
<td>HIST electives at the F300 level or above</td>
<td>6</td>
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</tr>
<tr>
<td>HIST electives</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**Homeland Security and Emergency Management**

School of Management
Department of Homeland Security and Emergency Management
907-474-7461
http://www.uaf.edu/som/degrees/undergraduate/bsem/

**B.S.E.M. Degree**

Minimum Requirements for Degree: 120 credits

In a post-9/11 environment, the challenges faced by emergency management and homeland security professionals have reached unprecedented levels. As we experience an increase in the frequency, complexity and severity of manmade, natural and technological disasters, ever-increasing demands have been placed on emergency professionals and the skill sets required to succeed. Today, more so than ever before, the integration of federal, state and local resources, communication and collaboration has become the norm. Issues concerning terrorism, critical infrastructure protection/management, risk, business continuity, fire, hazardous materials, law enforcement, public health and safety are no longer domains unto themselves but part of the new fabric of this highly integrated and complex environment. Consequently, more is now required and expected of our traditional first responders and those charged with the leadership and management roles of these individuals and organizations.

The Bachelor of Security and Emergency Management program focuses on developing skills to lead and manage individuals and organizations in an increasingly complex environment. The program builds upon an individual’s technical capabilities derived from education, training and experience in fire, law enforcement, military or other related fields. This technical expertise is then combined with a curriculum of business administration, emergency management and homeland security instruction. This focus gives students the operations management knowledge to lead and manage individuals, departments or agencies on a day-to-day basis as well as during times of crisis at the local, regional, national or international levels. This degree is built specifically to meet the needs of those who provide administrative oversight, supervisory control, leadership or management roles within the fields of fire, law, emergency medical services, and security (to include other related fields) at the local, state, federal and international levels. The degree also provides those at the responder level the opportunity to further their education, increase their competitive advantage for promotion
Concentrations

CYBERSECURITY AND INFORMATION TECHNOLOGY MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HSEM F415</td>
<td>Cyberdomain in the 21st Century</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F416</td>
<td>Cybersecurity Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F417</td>
<td>Cybersecurity Resiliency</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F418</td>
<td>Cybercrime, Fraud and Law</td>
<td>3</td>
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</table>

EMERGENCY MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HSEM F401</td>
<td>Principles of Emergency Management and Homeland Security</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F412</td>
<td>Emergency Planning and Preparedness</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F423</td>
<td>Disaster Response Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F434</td>
<td>All-hazards Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F445</td>
<td>Business Continuity and Crisis Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F456</td>
<td>Leadership in Dangerous Contexts</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete at least 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F317</td>
<td>Employment Law</td>
<td>3</td>
</tr>
<tr>
<td>BA F490</td>
<td>Services Marketing</td>
<td>3</td>
</tr>
<tr>
<td>COJO F335</td>
<td>Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>COJO F353</td>
<td>Conflict, Mediation and Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Of the above, at least 39 credits must be taken in upper-division (F300-level or higher) courses.

Concentrations

Emergency Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F402</td>
<td>Incident Command for Emergency Medical Services</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F403</td>
<td>Public Health in Emergencies</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F405</td>
<td>Introduction to Emergency Management Exercise Design</td>
<td>3</td>
</tr>
</tbody>
</table>

FIRE ADMINISTRATION

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F439</td>
<td>Supervising Emergency Services</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F440</td>
<td>Advanced Principles of Fire Service Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

HOMELAND SECURITY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F406</td>
<td>Comparative Homeland Security</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F408</td>
<td>Homeland Defense and Security</td>
<td>3</td>
</tr>
</tbody>
</table>

PUBLIC SAFETY MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F404</td>
<td>Public Safety Instruction</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F418</td>
<td>Cybercrime, Fraud and Law</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F467</td>
<td>Current Topics in Public Safety</td>
<td>3</td>
</tr>
</tbody>
</table>

Minor, Emergency Management

Minimum Requirements for Minor: 15 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F301</td>
<td>Principles of Emergency Management and Homeland Security</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F412</td>
<td>Emergency Planning and Preparedness</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F423</td>
<td>Disaster Response Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F434</td>
<td>All-hazards Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F445</td>
<td>Business Continuity and Crisis Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F456</td>
<td>Leadership in Dangerous Contexts</td>
<td>3</td>
</tr>
<tr>
<td>BA F317</td>
<td>Employment Law</td>
<td>3</td>
</tr>
<tr>
<td>BA F490</td>
<td>Services Marketing</td>
<td>3</td>
</tr>
<tr>
<td>COJO F335</td>
<td>Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>COJO F353</td>
<td>Conflict, Mediation and Communication</td>
<td>3</td>
</tr>
</tbody>
</table>
facilities and faculty are available to ensure an approximation of a normal

the proposal will require evidence that the necessary

Students may submit a proposal for an interdisciplinary program where

INTERDISCIPLINARY GOALS OPTION

Students must earn a C- grade or better in each course.

Code | Title | Credits
--- | --- | ---
MILS electives | 10
Complete two from the following: | 6
HSEM F301 | Principles of Emergency Management and Homeland Security | 3
HSEM F412 | Emergency Planning and Preparedness | 3
HSEM F423 | Disaster Response Operations and Management | 3
HSEM F434 | All-hazards Risk Analysis | 3
HSEM F445 | Business Continuity and Crisis Management | 3
HSEM F456 | Leadership in Dangerous Contexts | 3
MILS F442 | History of the American Military | 3

1 Or course(s) pre-approved by the program director.

2 As approved by the program director, Homeland Security and Emergency Management.

Minor, Military Security Studies

Minimum Requirements for Minor: 16 credits
Students must earn a C- grade or better in each course.

B.A., B.A.A.S., B.S. Degrees

Minimum Requirements for Degrees: 120-130 credits

The interdisciplinary program provides flexibility to students who have

all general requirements for the B.A., B.A.A.S. or

undergraduate degree. All general requirements for the B.A., B.A.A.S. or

B.S. degree must be met.

In developing an interdisciplinary proposal, the student should specify

the degree (B.A., B.A.A.S. or B.S.), include an explanation of how the

proposed program differs substantially from established UAF programs,

and include a discussion showing that current UAF resources are

adequate to meet the requirements of the proposed program. (A

minimum of two disciplines is required for the interdisciplinary degree.)

The B.A.A.S. degree is specifically designed to build upon the technical

experience of students who have earned an Associate of Applied Science

degree. The student then creates an advisory committee of at least three

faculty members from the appropriate disciplines and holds at least

one formal meeting with the full committee to review the proposal. The

committee will appoint a chair, review the proposed program, select a

degree title in concert with the student and make its recommendation.

Applicants then submit the proposal for the program they wish to

pursue to the dean of General Studies, specifying the degree, proposed

curriculum work sheet and rationale. The degree is awarded through the

school or college of the chair of the committee, subject to approval by the

dean of the General Studies.

Students interested in pursuing an undergraduate interdisciplinary degree

can contact the Academic Advising Center for help in finding faculty

advisors and developing their curriculum proposal at 907-474-6396 or

http://www.uaf.edu/advising/.

GENERAL STUDIES DEGREE COMPLETION OPTION (MAY

NOT BE USED AS A DOUBLE MAJOR)

The interdisciplinary general studies program is a pathway to graduation

for students who have earned 100 college credits or more but are

not close to completing, or are unable to complete, a particular major. Interdisciplinary general studies students have the flexibility

to choose classes that are meaningful and relevant to their interests

and goals. Admission to the interdisciplinary general studies program

requires a consultation with a degree completion advisor located in the

Academic Advising Center or available at 907-474-6396.

Degrees

• B.A., Interdisciplinary Studies (p. 220)

• B.S., Interdisciplinary Studies (p. 221)

• B.A.A.S., Interdisciplinary Studies (p. 163)

Minor

• Minor (p. 221)

B.A., Interdisciplinary Studies

Minimum Requirements for Degree: 130 credits

1. Contact the Academic Advising Center

at 907-474-6396 or 888-823-8780 for materials and procedures.

Prepare and submit a rationale/justification letter.

2. Three faculty members serving in the Academic Advising Center or at

rural campuses will serve as the degree completion interdisciplinary

studies committee.

3. Prepare rationale/justification letter explaining the need for the

degree completion program.

4. Conduct committee meeting to finalize degree proposal.
5. Submit to the dean of general studies for final approval.
6. Complete all the requirements for the baccalaureate program including:
   a. Completing the general education requirements
   b. Completing the residency requirement
   c. Completing 39 upper-division credits
   d. Complete the baccalaureate capstone requirement as determined by the program.

B.S., Interdisciplinary Studies

Minimum Requirements for Degree: 130 credits
1. Contact the Academic Advising Center at 907-474-6396 or 888-823-8780 for materials and procedures. Prepare and submit a rationale/justification letter.
2. Three faculty members serving in the Academic Advising Center or at rural campuses will serve as the degree completion interdisciplinary studies committee.
3. Prepare rationale/justification letter explaining the need for the degree completion program.
4. Conduct committee meeting to finalize degree proposal.
5. Submit to the dean of general studies for final approval.
6. Complete all the requirements for the baccalaureate program including:
   a. Completing the general education requirements
   b. Completing the residency requirement
   c. Completing 39 upper-division credits
   d. Complete the baccalaureate capstone requirement as determined by the program.

B.A.A.S., Applied Arts and Sciences

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td>B.A.A.S. Degree and Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.A.A.S. degree requirements. (p. 147)</td>
<td></td>
</tr>
<tr>
<td>ENGL F314</td>
<td>Technical Writing</td>
<td></td>
</tr>
<tr>
<td>Interdisciplinary studies</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Complete an Associate of Applied Science degree from an accredited institution of higher education.</td>
<td></td>
</tr>
<tr>
<td>Capstone Requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete baccalaureate capstone requirement as determined by the program.</td>
<td></td>
</tr>
</tbody>
</table>

1 Approved by an advisory committee of at least three faculty members.

Note: At least 39 credits must be F300 level or above.

See Interdisciplinary Studies (p. 220).

Minor, Interdisciplinary Studies

Minimum Requirements for Minor: 18 credits
1. Contact the Academic Advising Center at 907-474-6396 or 888-823-8780 for materials and procedures and to make an appointment with the interdisciplinary advisor.
2. After meeting with the interdisciplinary minor advisor, electronically submit a written proposal describing your interdisciplinary minor to the Academic Advising Center at uaf-advising@alaska.edu or in person at 510 Gruening Building. The proposal should include your name, student ID number, the date, a title for the minor, a description of the body of knowledge and skills relating to the minor’s theme, and a list of courses included in the minor. A brief description of how each course specifically relates to the minor’s theme should also be included. An interdisciplinary minor cannot be titled the same as an existing minor and must demonstrate a cohesive body of knowledge skills. The approved title will appear on your transcript.
3. Three faculty members approved by the dean of General Studies will serve as the interdisciplinary minor committee. This committee will ensure that an appropriate and cohesive body of knowledge and skills is addressed in the planned minor and that the interdisciplinary minor does not overlap with an existing minor.

Japanese Studies

College of Liberal Arts
Department of Foreign Languages and Literatures
907-474-7396
http://www.uaf.edu/language/

B.A. Degree

Minimum Requirements for Degree: 120 credits
Students majoring in Japanese studies are required to successfully complete at least one semester on an exchange program in Japan. Spending a full academic year abroad is strongly encouraged.

Degree
• B.A., Japanese Studies (p. 221)

Minor
• Minor, Japanese Studies (p. 222)

B.A., Japanese Studies

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td>B.A. Degree Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
<td></td>
</tr>
<tr>
<td>Program Requirements (all courses in this category are taught in Japanese)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPN F301</td>
<td>Advanced Japanese</td>
<td>3</td>
</tr>
<tr>
<td>JPN F302</td>
<td>Advanced Japanese</td>
<td>3</td>
</tr>
</tbody>
</table>
### Minor, Japanese Studies

**Minimum Requirements for Minor: 15 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPN F431</td>
<td>Studies in Japanese Culture ¹</td>
<td>3</td>
</tr>
<tr>
<td>JPN F432</td>
<td>Studies in Japanese Language ¹</td>
<td>3</td>
</tr>
<tr>
<td>JPN F475</td>
<td>Seminar on Contemporary Japan ²</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

**Japanese Studies Electives**

Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPN F330</td>
<td>Classical Japanese Literature</td>
<td></td>
</tr>
<tr>
<td>JPN F331</td>
<td>Women's Voices in Japanese Literature</td>
<td></td>
</tr>
<tr>
<td>JPN F332</td>
<td>Japanese Cultural Traditions and Arts</td>
<td></td>
</tr>
<tr>
<td>JPN F333</td>
<td>20th-Century Japanese Prose Fiction</td>
<td></td>
</tr>
<tr>
<td>JPN F482</td>
<td>Selected Topics in Japanese</td>
<td></td>
</tr>
</tbody>
</table>

**Japan-Related Electives**

Complete 12 credits from the following as approved by an advisor:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F311</td>
<td>Geography of Asia</td>
<td></td>
</tr>
<tr>
<td>HIST F121</td>
<td>East Asian Civilization</td>
<td></td>
</tr>
<tr>
<td>HIST F122X</td>
<td>East Asian Civilization</td>
<td></td>
</tr>
<tr>
<td>HIST F331</td>
<td>Modern Japan</td>
<td></td>
</tr>
<tr>
<td>HIST F333</td>
<td>Foundations of Japanese History</td>
<td></td>
</tr>
<tr>
<td>HIST F414</td>
<td>Women and Gender in East Asian History</td>
<td></td>
</tr>
<tr>
<td>JPN F210</td>
<td>Beginning Kanji</td>
<td></td>
</tr>
<tr>
<td>JPN F310</td>
<td>Intermediate Kanji</td>
<td></td>
</tr>
<tr>
<td>JPN F311</td>
<td>Advanced Kanji</td>
<td></td>
</tr>
<tr>
<td>JPN F330</td>
<td>Classical Japanese Literature</td>
<td></td>
</tr>
<tr>
<td>JPN F331</td>
<td>Women's Voices in Japanese Literature</td>
<td></td>
</tr>
<tr>
<td>JPN F332</td>
<td>Japanese Cultural Traditions and Arts</td>
<td></td>
</tr>
<tr>
<td>JPN F333</td>
<td>20th-Century Japanese Prose Fiction</td>
<td></td>
</tr>
<tr>
<td>JPN F482</td>
<td>Selected Topics in Japanese</td>
<td></td>
</tr>
<tr>
<td>PS F221X</td>
<td>International Politics</td>
<td></td>
</tr>
<tr>
<td>PS F464</td>
<td>East Asian Governments and Politics</td>
<td></td>
</tr>
</tbody>
</table>

Completion of semester exchange in Japan or written departmental approval.

¹ After completion of language training through the 200 level, students may study in Japan as long as they complete a minimum of 15 credits of Japanese language study at the upper-division level to fulfill the Japanese studies core requirements. JPN F475 must be taken in residence at UAF.

² Fulfils the baccalaureate capstone requirement.

³ Instructor-approved Japan-related courses taken during time abroad may count toward this requirement.

⁴ Courses taken to satisfy Japanese studies electives requirement may not be retaken or otherwise counted to satisfy Japan-related electives requirement.

**Note:** Students planning a double major for a single B.A. may double count a maximum of 9 credits from the major requirements toward a second major. Students earning two degrees are not subject to double-counting restrictions.

---

### Justice

**College of Liberal Arts**

Justice Program

907-474-5500

http://www.uaf.edu/justice/

**B.A. Degree**

Minimum Requirements for Degree: 120 credits

The justice discipline represents a melding of theoretical and applied concepts, and both the B.A. degree in justice and the M.A. degree in administration of justice reflect that dichotomy. Consequently, students explore theoretical models associated with different aspects of the criminal justice system, and also study its structure and administration.

The applied nature of the degree results in graduates with a B.A. in justice who can compete for positions in various justice employment fields. Justice juniors and seniors also enjoy opportunities for internships with various justice agencies.

Justice courses are available online and in the classroom.

**Degree**

- B.A., Justice (p. 222)

**Minor**

- Minor, Justice (p. 223)

---

### B.A., Justice

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
<td>3</td>
</tr>
<tr>
<td>JUST F125X</td>
<td>Introduction to Addictive Processes</td>
<td>3</td>
</tr>
<tr>
<td>JUST F222</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>JUST F251X</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>JUST F300X</td>
<td>Ethics and Justice ¹</td>
<td>3</td>
</tr>
<tr>
<td>JUST F310</td>
<td>Principles of Corrections</td>
<td>3</td>
</tr>
<tr>
<td>JUST F340</td>
<td>Rural Justice in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>JUST F358</td>
<td>Juvenile Delinquency</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following capstone courses:

- JUST F475 | Internship                                    | 3       |
- JUST F490 | Capstone: Seminar in Critical Issues in Criminal Justice | 3       |
- JUST F498 | Research Project                              | 3       |
Complete 18 credits from the following, 12 of which need to be justice electives:

- ANTH F242 Native Cultures of Alaska
- ANTH F320 or COJO F330 Language and Culture in Alaska or Intercultural Communication
- COJO F201 Dispute Resolution and Restorative Practices
- COJO F302 Dispute Systems Design
- COJO F451 Cross-cultural Conflict Analysis and Intervention
- COJO F461 Law and Science of Arbitration
- COJO F465 Clinic in Mediation, Conferencing and Circle Practices
- HUMS F205 Basic Principles of Group Counseling
- JUST F315 Correctional Counseling and Rehabilitation
- JUST F335 Gender and Crime
- JUST F345 Police Problems
- JUST F352 Criminal Law
- JUST F354 Procedural Law
- JUST F453 Comparative Criminology
- JUST F454 Advanced Problems in Procedural Law
- JUST F475 Internship
- JUST F492/F492P Seminar
- PSY F330 Social Psychology
- PSY F370 Drugs and Behavior
- SOC F201X Social Problems and Solutions
- SOC F301 Rural Sociology
- SOC F335 Deviance and Social Control

1 If taken to meet the ethics requirement in the degree specific requirements, then the student must take an additional upper-division justice elective for 3 credits to complete the major.

2 Fulfills the baccalaureate capstone requirement.

Minor, Justice
Minimum Requirements for Minor: 15 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
<td>3</td>
</tr>
<tr>
<td>JUST electives</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Note: 400-level courses require junior standing or instructor permission

Law and Society
College of Liberal Arts
Department of Political Science
907-474-7609
http://www.uaf.edu/polisci/

Minor, Leadership
Minimum Requirements for Minor: 15 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM/LEAD F456</td>
<td>Leadership in Dangerous Contexts</td>
<td>6</td>
</tr>
</tbody>
</table>

1 This program helps students understand law in relationship to the larger society. It is based firmly on the view that the law is a rich humanistic tradition and study of legal ideas and institutions will promote sustained reflection on such fundamental concepts and values as equality, freedom, privacy, justice and human rights.

While the program is of special interest to students who plan graduate studies in law or careers in government service, it is recommended for any student who desires to understand the role of law in society. The program provides students with tools for reasoned appraisal of how the law works, ideas and policies that underlie it, and the ability to think clearly and analyze arguments critically.

Minor
- Minor, Law and Society (p. 223)

Minor, Law and Society
Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F303</td>
<td>Politics and the Judicial Process</td>
<td>3</td>
</tr>
<tr>
<td>PS F435</td>
<td>Constitutional Law I: Federalism</td>
<td>3</td>
</tr>
<tr>
<td>PS F436</td>
<td>Constitutional Law II: Civil Rights and Liberties</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

- ANS F425 Federal Indian Law and Alaska Natives
- BA F317 Employment Law
- BA F330 The Legal Environment of Business
- COJO F413 Mass Media Law and Regulation
- JUST F352 Criminal Law
- JUST F354 Procedural Law
- PS F322 International Law and Organization
- PS F450 Comparative Indigenous Rights and Policies
- SOC F435 Sociology of Law

Leadership
School of Management
907-474-7461
http://www.uaf.edu/som/

Minor, Leadership
Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM/LEAD F456</td>
<td>Leadership in Dangerous Contexts</td>
<td>6</td>
</tr>
</tbody>
</table>

1 This program helps students understand law in relationship to the larger society. It is based firmly on the view that the law is a rich humanistic tradition and study of legal ideas and institutions will promote sustained reflection on such fundamental concepts and values as equality, freedom, privacy, justice and human rights.

While the program is of special interest to students who plan graduate studies in law or careers in government service, it is recommended for any student who desires to understand the role of law in society. The program provides students with tools for reasoned appraisal of how the law works, ideas and policies that underlie it, and the ability to think clearly and analyze arguments critically.
LEAD/BA F470  Leadership Theory and Development
LEAD/BA F472  Leading Change

**Tracks**

**Business Administration Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA/LEAD/SPRT F280</td>
<td>Sport Leadership</td>
<td>1</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F460</td>
<td>International Business</td>
<td>3</td>
</tr>
</tbody>
</table>

**Military Science Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILS F101</td>
<td>Foundations of Officership</td>
<td>3</td>
</tr>
<tr>
<td>MILS F102</td>
<td>Basic Leadership</td>
<td>3</td>
</tr>
<tr>
<td>MILS F201</td>
<td>Individual Leadership Studies</td>
<td>3</td>
</tr>
<tr>
<td>MILS F202</td>
<td>Leadership and Teamwork</td>
<td>3</td>
</tr>
</tbody>
</table>

**Political Science Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F212</td>
<td>Introduction to Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>PS F301</td>
<td>American Presidency</td>
<td>3</td>
</tr>
<tr>
<td>PS/PHEL F412</td>
<td>Modern Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>PS F437</td>
<td>United States Foreign Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Communication Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F330</td>
<td>Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>COJO F331</td>
<td>Advanced Group Communication</td>
<td>3</td>
</tr>
<tr>
<td>COJO F335</td>
<td>Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>COJO F475</td>
<td>Applied Communication in Training and Development</td>
<td>3</td>
</tr>
</tbody>
</table>

**Outdoor Leadership Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F161</td>
<td>Wilderness Leadership Education</td>
<td>3</td>
</tr>
<tr>
<td>NRM F361</td>
<td>Advanced Wilderness Leadership Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 3 credits from the following skills courses for the remaining 3 credits:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS F150</td>
<td>Wilderness Emergency Care</td>
<td>3</td>
</tr>
<tr>
<td>RECR F140H</td>
<td>Beginning Rock Climbing</td>
<td>3</td>
</tr>
<tr>
<td>RECR F140K</td>
<td>Advanced Rock Climbing</td>
<td>3</td>
</tr>
<tr>
<td>RECR F140L</td>
<td>Technical Climbing</td>
<td>3</td>
</tr>
<tr>
<td>RECR F140Y</td>
<td>Kayaking</td>
<td>3</td>
</tr>
<tr>
<td>RECR F170G</td>
<td>Introduction to Ski Mountaineering</td>
<td>3</td>
</tr>
<tr>
<td>RECR F170N</td>
<td>Introduction to Winter Camping</td>
<td>3</td>
</tr>
</tbody>
</table>

**Alaska Native Community Leadership Track**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F310</td>
<td>Indigenous Land Settlements</td>
<td>3</td>
</tr>
<tr>
<td>ANS F325</td>
<td>Native Self-government</td>
<td>3</td>
</tr>
<tr>
<td>ANS/BD F401</td>
<td>Cultural Knowledge of Native Elders</td>
<td>3</td>
</tr>
<tr>
<td>ANS F425</td>
<td>Federal Indian Law and Alaska Natives</td>
<td>3</td>
</tr>
<tr>
<td>RD F492</td>
<td>Rural Development Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

1. These courses have prerequisites that need to be taken into consideration. Consult with the School of Management.

2. Complete 9 credit hours from one of the “tracks” OR with the written approval of the School of Management, any three 3-credit hour courses from any combination of tracks.

**Linguistics**

College of Liberal Arts
Linguistics Program
907-474-7446
http://www.uaf.edu/linguist/

**B.A. Degree**

Minimum Requirements for Degree: 120 credits

Linguistics is the study of language and covers a variety of subjects from theories of grammar and how we produce language to applications of linguistic knowledge in areas such as language teaching. The undergraduate degree program seeks to give an overview of the discipline to raise students’ awareness of the many aspects of that uniquely human phenomenon, language.

**Degree**

- B.A., Linguistics (p. 224)

**Minor**

- Minor, Linguistics (p. 225)

**B.A., Linguistics**

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F318</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>LING F101X</td>
<td>Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td>LING F318</td>
<td>Introduction to Phonetics and Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING F320</td>
<td>Introduction to Morphology</td>
<td>3</td>
</tr>
<tr>
<td>LING F430</td>
<td>Historical Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>or LING F410</td>
<td>Theory and Methods of Second Language Teaching</td>
<td>3</td>
</tr>
<tr>
<td>or LING F431</td>
<td>Field Methods in Descriptive Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING F441</td>
<td>Topics in Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING F482</td>
<td>Seminar in Linguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete four approved electives, three of which must be upper-division. 3

1. It is recommended that at least one of the languages be other than an Indo-European language.
Minor, Linguistics

Minimum Requirements for Minor: 15 credits
Students must earn a C- grade or better in each course.

Code | Title | Credits
--- | --- | ---
LING F101X | Nature of Language | 3
LING F318 | Introduction to Phonetics and Phonology | 3
LING F320 | Introduction to Morphology | 3
or ENGL F318 | Modern English Grammar | 3

Complete two LING electives | 6

Three of these credits may be from related courses in other departments of the following:

ANL F251X | Introduction to Athabascan Linguistics | 3
ANL F315 | Alaska Native Languages: Eskimo-Aleut | 3
ANL F316 | Alaska Native Languages: Indian Languages | 3

ANTH/WGS F308 | Language and Gender | 3
COJO F320 | Communication and Language | 3
ENGL F462 | Applied English Linguistics | 3
ENGL F472 | History of the English Language | 3
LING F410 | Theory and Methods of Second Language Teaching | 3
LING F420 | Semantics | 3
LING F430 | Historical Linguistics | 3
LING F431 | Field Methods in Descriptive Linguistics I | 3
LING F434 | Field Methods in Descriptive Linguistics II | 3
LING F450 | Language Policy and Planning | 3

Other upper-division LING electives | 3

---

Minor, Marine Science

Minimum Requirements for Minor: 15 credits

Code | Title | Credits
--- | --- | ---
MSL F211 | Introduction to Marine Science I | 3
MSL F212 | Introduction to Marine Science II | 3
MSL F213L | Marine Science Laboratory | 1

Complete 3 credits from the following: | 3

MSL F215 | Marine Geological Drama and Undersea Catastrophes | 3
MSL F216 | The Oceans and Global Change | 3
MSL F218 | Astrobiology: Planets, Oceans and Life | 3
MSL F305 | Invertebrate Zoology | 3
MSL F317 | Introduction to Marine Mammal Biology | 3
MSL F403 | Estuaries Oceanography | 3
MSL F411 | Current Topics in Oceanographic Research | 3
MSL F412 | Early Life Histories of Marine Invertebrates | 3
MSL F419 | Concepts in Physical Oceanography | 3
MSL F431 | Polar Marine Science | 3
MSL F440 | Oceanography for Fisheries | 3
MSL F461 | Chemical Oceanography | 3
MSL F463 | Chemical Coastal Processes | 3
MSL F464 | Ecological and Evolutionary Genomics | 3

Complete 5 credits from the following: | 5

MSL F215 | Marine Geological Drama and Undersea Catastrophes | 3
MSL F216 | The Oceans and Global Change | 3
MSL F218 | Astrobiology: Planets, Oceans and Life | 3
MSL F220 | Scientific Diving | 3
MSL/BIOL F305 | Invertebrate Zoology | 3
MSL F317 | Introduction to Marine Mammal Biology | 3
MSL F330 | The Dynamic Alaskan Coastline | 3
MSL F403 | Estuaries Oceanography | 3
MSL F411 | Current Topics in Oceanographic Research | 3
MSL F412 | Early Life Histories of Marine Invertebrates | 3
MSL F419 | Concepts in Physical Oceanography | 3
MSL F421 | Field Course in Subtidal Studies | 3
MSL F431 | Polar Marine Science | 3
MSL F440 | Oceanography for Fisheries | 3

Marine Science

College of Fisheries and Ocean Sciences
907-474-7824
http://www.uaf.edu/cfos/academics/

Minor Only

Though the marine science minor is available to students in all degree programs, fisheries students will particularly benefit from the breadth this minor offers. The program will also appeal to students from other disciplines (e.g., political science, earth sciences, biology and wildlife, environmental science, resource management, education) in which possible career paths may require and/or benefit from training in marine science (policymaking, resource management, education, the seafood industry, etc.). Students who complete the minor in marine science will possess a knowledge base and skill set that will make them more competitive for a wide variety of agency and organization positions, particularly within the state of Alaska. The education and training will be applicable to jobs within government management agencies such as the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service, as well as Alaska Native organizations, nonprofit conservation organizations, the seafood industry, or in other policy development, fisheries, education or outreach capacities.
Mathematics
College of Natural Science and Mathematics
Department of Mathematics and Statistics
907-474-7332 or 907-474-5374
http://www.uaf.edu/dms/

B.A., B.S. Degrees
Minimum Requirements for Degrees: 120 credits

The number of new fields in which professional mathematicians find employment grows continually. This department prepares students for careers in industry, government and education.

In addition to the major programs, the department provides a number of service courses in support of other programs within the university. Current and detailed information on mathematics degrees and course offerings is available from the department.

The department maintains a math lab which is available for assistance to all students studying mathematics at the baccalaureate level.

The Department of Mathematics and Statistics also offers a minor in statistics (p. 249).

Degrees
- B.A., Mathematics (p. 226)
- B.S., Mathematics (p. 227)

Minor
- Minor, Mathematics (p. 228)
Requirements for Mathematics Teachers (Grades 7-12)

We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in their undergraduate degree program, so that they can be appropriately advised of the State of Alaska requirements for teacher licensure. Students may choose to pursue a double major with education or complete a postbaccalaureate teacher certification program.

Code | Title | Credits
--- | --- | ---
CS F201 | Computer Science I | 3
MATH F305 | Geometry | 3
MATH F316 | Introduction to the History and Philosophy of Mathematics | 3
STAT F300 | Statistics | 3
or MATH F371 and MATH F408 | Probability and Mathematical Statistics | 3
Complete one from the following: | 3
MATH F320 | Topics in Combinatorics | 
MATH F321 | Number Theory | 
MATH F307 | Discrete Mathematics | 
Complete two from the following: | 6-7
MATH F302 | Differential Equations | 
MATH F310 | Numerical Analysis | 
MATH F421 | Applied Analysis | 
MATH F422 | Introduction to Complex Analysis | 
MATH F460 | Mathematical Modeling | 

B.S., Mathematics

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F401</td>
<td>Introduction to Real Analysis</td>
<td></td>
</tr>
<tr>
<td>or MATH F405</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH F408</td>
<td>Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT F401</td>
<td>Regression and Analysis of Variance</td>
<td></td>
</tr>
<tr>
<td>STAT F402</td>
<td>Scientific Sampling</td>
<td></td>
</tr>
<tr>
<td>STAT F454</td>
<td>Statistical Consulting Seminar</td>
<td></td>
</tr>
</tbody>
</table>

1. Fulfills the baccalaureate capstone requirement.
2. Acceptable elective courses include any math or statistics course at the F300 level or above, and CS F201. At least 15 credits must be math courses. In some cases, courses with strong mathematical content from other disciplines may be used as electives. Such an elective must be approved by an advisor in the Department of Mathematics and Statistics. The requirement that at least 15 credits be math courses still applies.

Note: All mathematics majors — including double majors — must have an advisor from the Department of Mathematics and Statistics.

Note: At least 12 approved mathematics credits at the F300 level or above must be taken while in residence on the Fairbanks campus.
Minor, Mathematics

Requirements for Mathematics Teachers (Grades 7-12)

We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in their undergraduate degree program, so that they can be appropriately advised of the State of Alaska requirements for teacher licensure. Students may choose to pursue a double major with education or complete a postbaccalaureate teacher certification program.

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS F201</td>
<td>Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>MATH F305</td>
<td>Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH F316</td>
<td>Introduction to the History and Philosophy of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>STAT F300</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or MATH F371</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>and MATH F408</td>
<td>and Mathematical Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Complete one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F320</td>
<td>Topics in Combinatorics</td>
<td>3</td>
</tr>
<tr>
<td>MATH F321</td>
<td>Number Theory</td>
<td></td>
</tr>
<tr>
<td>MATH F307</td>
<td>Discrete Mathematics</td>
<td></td>
</tr>
</tbody>
</table>

Complete two from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>6-7</td>
</tr>
<tr>
<td>MATH F310</td>
<td>Numerical Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH F421</td>
<td>Applied Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH F422</td>
<td>Introduction to Complex Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH F460</td>
<td>Mathematical Modeling</td>
<td></td>
</tr>
</tbody>
</table>

Additional 3 elective credits at the F300 level or above

1 Fulfills the baccalaureate capstone requirement.

2 Acceptable elective courses include any math or statistics course at the F300 level or above, and CS F201. At least 15 credits must be math courses. In some cases, courses with strong mathematical content from other disciplines may be used as electives. Such an elective must be approved by an advisor in the Department of Mathematics and Statistics. The requirement that at least 15 credits be math courses still applies.

Note: All mathematics majors — including double majors — must have an advisor from the Department of Mathematics and Statistics.

Note: At least 12 approved mathematics credits at the F300 level or above must be taken while in residence on the Fairbanks campus.

Minor, Mathematics
Students may choose a concentration in mechanical, aerospace or petroleum engineering. Because of UAF’s unique location, special emphasis is placed on cold regions engineering problems. This fact is highlighted in the technical elective, Arctic engineering. Candidates for the B.S. degree in mechanical engineering are required to take the State of Alaska Fundamentals of Engineering examination in their general field.

Undergraduate students who plan to pursue graduate studies in engineering may also choose an accelerated degree for a master’s in mechanical engineering. This program speeds the process and allows qualified mechanical engineering students to complete both a Bachelor of Science and a Master of Science degree in five years.

Degrees

- B.S., Mechanical Engineering (p. 229)
- B.S./M.S., Mechanical Engineering (p. 229)

B.S., Mechanical Engineering

Minimum Requirements for Degree: 130 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

**General University Requirements**
Complete the general university requirements. (p. 142)

**General Education Requirements**
Complete the general education requirements. (p. 145)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td></td>
</tr>
</tbody>
</table>

**B.S. Degree Requirements**
Complete the B.S. degree requirements. (p. 154)

As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td></td>
</tr>
</tbody>
</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES F101</td>
<td>Introduction to Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ES F201</td>
<td>Computer Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ES F209</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>ES F210</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ES F301</td>
<td>Engineering Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ES F307</td>
<td>Elements of Electrical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ES F331</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ES F346</td>
<td>Introduction to Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ESM F450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>ME F302</td>
<td>Dynamics of Machinery</td>
<td>4</td>
</tr>
<tr>
<td>ME F308</td>
<td>Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>ME F313</td>
<td>Mechanical Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME F321</td>
<td>Industrial Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

**Fundamentals of Engineering (FE) Examination**
Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

**Concentrations**
Complete one of the following concentrations: 9-12

- Mechanical
- Aerospace
- Petroleum

1. Design project must be related to area of concentration.
2. Fulfills the baccalaureate capstone requirement.

B.S./M.S., Mechanical Engineering

Complete the following admission requirements:

1. ME major (junior preferred) or senior standing.
2. GPA 3.25 or above (based on minimum of 24 credits in ME major requirements). Students must maintain a cumulative GPA of 3.0 to remain in the program.
3. Submit a study goal statement.
4. Submit a UAF graduate application for admission.

Minimum Requirements for Both Degrees: 151 credits
Students must satisfy the General University Requirements for minimum grades for the respective B.S. or M.S. program (major) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.S. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.S. degree requirements. (p. 154)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the B.S. degree requirements, complete:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH F252X Calculus II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PHYS F211X General Physics I</td>
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<td>PHYS F212X General Physics II</td>
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<td></td>
<td>Master’s Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
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<tr>
<td></td>
<td>B.S. Program Requirements</td>
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<tr>
<td></td>
<td>ES F101 Introduction to Engineering</td>
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<tr>
<td></td>
<td>ES F201 Computer Techniques</td>
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<td>ES F209 Statics</td>
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<td></td>
<td>ES F210 Dynamics</td>
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<td></td>
<td>ES F301 Engineering Analysis</td>
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<td></td>
<td>ES F307 Elements of Electrical Engineering</td>
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<td>ES F331 Mechanics of Materials</td>
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<td>ES F341 Fluid Mechanics</td>
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<td>ES F346 Introduction to Thermodynamics</td>
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<td>ESM F450 Economic Analysis and Operations</td>
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<td></td>
<td>MATH F253X Calculus III</td>
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<td>MATH F302 Differential Equations</td>
<td>3</td>
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<td></td>
<td>ME F302 Dynamics of Machinery</td>
<td>4</td>
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<tr>
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<td>ME F308 Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
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<td>ME F313 Mechanical Engineering</td>
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<tr>
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<td>ME F314 Thermodynamics</td>
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</tr>
<tr>
<td></td>
<td>ME F321 Industrial Processes</td>
<td>3</td>
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<td></td>
<td>ME F334 Elements of Material Science/</td>
<td>3</td>
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<td>Engineering</td>
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<td>ME F403 Machine Design</td>
<td>3</td>
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<td>ME F408 Mechanical Vibrations</td>
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<tr>
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<td>ME F415 Thermal Systems Laboratory</td>
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<td></td>
<td>ME F441 Heat and Mass Transfer</td>
<td>3</td>
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<tr>
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<td>ME F486 Senior Design</td>
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<td>ME F487 Design Project</td>
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<td>Fundamentals of Engineering Examination</td>
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<td>M.S. Program Requirements</td>
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<td>ME F608 Advanced Dynamics</td>
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<td>ME F631 Advanced Mechanics of Materials</td>
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<td>ME F634 Advanced Materials Engineering</td>
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<td>ME F641 Advanced Fluid Mechanics</td>
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<td>ME F642 Advanced Heat Transfer</td>
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</tbody>
</table>

Thesis or Non-Thesis Requirements

Complete the thesis or non-thesis option: 15

Thesis

- ME F699 Thesis

Non-Thesis

- ME F698 Non-thesis Research/Project

Electives

1. Fulfills the baccalaureate capstone requirement.
2. Electives approved by student’s advisory committee with at least 3 credits at the graduate level
3. Electives approved by student’s advisory committee with at least 6 credits at the graduate level

Note: This degree program must be completed in seven years or the student will be disqualified from the program. If a student is disqualified for exceeding the seven-year limit, a mechanical engineering B.S. degree will be awarded if:

1. course work is completed in 10 years, and
2. the student meets all ME B.S. requirements.

Military Science and Leadership

School of Management
Department of Military Science and Leadership
907-474-7501
http://www.uaf.edu/rotc/

Minor Only

The Army Reserve Officers’ Training Program is America’s primary program for training military officers. The Nanook Battalion is a cooperative effort agreed to by the Army and UAF as a means of providing junior officer leadership in the interest of national security. The goal of the program is to assist young men and women with leadership potential in obtaining commissions in the Army Reserve, National Guard or regular Army.

Military science and leadership is an approved minor for the B.A. degree. Army instructors train students in leadership, management and decision-making through academic instruction and practical experience laboratories. These instructors impart qualities necessary for the Army officer and civilian executive.

ROTC is divided into the basic course for freshmen and sophomores and the advanced course for juniors and seniors. Programs and courses can be adjusted to meet specific needs of individual students who desire to enroll but are past their freshman year.

Basic military science courses are open to all students regardless of whether or not they intend to seek an Army commission. There is no military obligation incurred by enrolling in any of the basic courses.

Students who complete the basic course and desire to pursue the program for a commission may apply for enrollment in the advanced course. A special basic camp, two-year program is available for transfer students and others who were unable to take ROTC prior to their last two years in school. This program allows immediate acceleration into the advanced course. Students should consult the professor of military science prior to June 1 annually for information concerning the basic
Students with prior military service may also apply for immediate enrollment as an advanced course student. Applicants must be physically qualified and be selected by the professor of military science. The criterion for selection is based on both academic proficiency and leadership potential. Students who wish to enroll in advanced classes but do not desire to earn a commission may do so with the approval of the department head.

There are many activities sponsored by the Nanook Battalion. The ROTC Color Guard team opens UAF hockey, basketball and other sporting and community events. They provide a recognized trained and dedicated guard for the national colors during the national anthem and opening ceremony. The Ranger Challenge team represents the Nanook Battalion and UAF in an annual military skill-based competition in Hawaii. The Nanook Battalion has a complete set of match grade rifles and pistols for marksmanship training. Army training such as Airborne School, Air Assault School, Northern Warfare Training and Mountaineering School are also offered to students.

At an annual UAF ceremony, awards are presented for outstanding academic, athletic and leadership achievement, as well as excellence in ROTC skills.

Completion of the advanced program will lead to service in the Army as a commissioned officer. Students who compete for a commission are provided a monthly stipend. Advanced course students receive a monthly subsistence allowance during the school year. This allowance is tax free. Students enrolled in military science are furnished uniforms and texts by the department. Army ROTC scholarships are available for tuition and lab fees, and provide a book allowance in addition to the stipend. Scholarships are awarded for two, three or four years on a competitive basis. Interested students should contact the Military Science Department for further details.

At an annual UAF ceremony, awards are presented for outstanding academic, athletic and leadership achievement, as well as excellence in ROTC skills.

Completion of the advanced program will lead to service in the Army as a commissioned officer. Students who compete for a commission are provided a monthly stipend. Advanced course students receive a monthly subsistence allowance during the school year. This allowance is tax free. Students enrolled in military science are furnished uniforms and texts by the department. Army ROTC scholarships are available for tuition and lab fees, and provide a book allowance in addition to the stipend. Scholarships are awarded for two, three or four years on a competitive basis. Interested students should contact the Military Science Department for further details.

Mineral Science Leadership

Minimum Requirements for Minor: 19 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MILS</td>
<td>electives</td>
<td>19</td>
</tr>
</tbody>
</table>

Electives must be approved by the department.

Mining Engineering

College of Engineering and Mines
Department of Mining and Geological Engineering
907-474-7388
http://cem.uaf.edu/mingeo/

B.S. Degree

Minimum Requirements for Degree: 132 credits

As the nation’s northernmost accredited mining engineering program, our mission is to advance and disseminate knowledge for exploration, evaluation, development and efficient production of mineral and energy resources with assurance of the health and safety of persons involved and protection of the environment, through creative teaching, research and public service with an emphasis on Alaska, the North and its diverse peoples.

The mining engineering program emphasizes engineering as it applies to the exploration and development of mineral resources and the economics of the business of mining. The program offers specializations in exploration, mining or mineral beneficiation.

Students are prepared for job opportunities with mining and construction companies, consulting and research firms, equipment manufacturers, investment and commodity firms in the private sector, as well as with state and federal agencies.

The mining engineering program educational objectives are to graduate competent engineers who:

- are employed in the mineral and energy industries,
- can solve problems germane to Alaska, and
- are professionals and who understand the need to stay technically current.

Mining engineers may aspire to, and achieve, the highest positions in the industry: operating or engineering management, government agency director or entrepreneur. Starting salaries are among the highest in the engineering profession.

Students may initiate their mining engineering program in Anchorage and transfer to Fairbanks upon completion of their freshman or sophomore year. Anchorage students intending to transfer to Fairbanks should contact faculty of the UAF Mining Engineering Department.

Candidates for the B.S. degree in mining engineering must take the State of Alaska Fundamentals of Engineering examination. The Fundamentals of Engineering examination is a first step toward registration as a professional engineer.

The minor in mining engineering provides nonmining engineering students with an opportunity to acquire employable skills in the mining profession. Students in the mining engineering minor will be trained in a broad variety of topics such as mine ventilation, ground control, mine operation, economics, environmental law and labor management. Students will have the choice of other mining topics to make up the minor requirements.

For more information about the mining engineering program mission, goals and educational objectives, visit http://cem.uaf.edu/mingeo/abet/.

Degree

- B.S., Mining Engineering (p. 231)

Minor

- Minor, Mining Engineering (p. 232)

B.S., Mining Engineering

Minimum Requirements for Degree: 132 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
</tbody>
</table>
Complete the general education requirements. (p. 145)
As part of the general education requirements, complete:

- CHEM F105X General Chemistry I
- CHEM F106X General Chemistry II
- MATH F251X Calculus I

**B.S. Degree Requirements**
Complete the B.S. degree requirements. (p. 154)
As part of the B.S. degree requirements, complete:

- LS F101X Library Information and Research
- MATH F252X Calculus II
- PHYS F211X General Physics I
- PHYS F212X General Physics II

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ES F208</td>
<td>Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ES F307</td>
<td>Elements of Electrical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ES F331</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ES F346</td>
<td>Introduction to Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>GE F261</td>
<td>General Geology for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F262</td>
<td>Rocks and Minerals</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F332</td>
<td>Ore Deposits and Structure</td>
<td>3</td>
</tr>
<tr>
<td>MIN F103</td>
<td>Introduction to Mining Engineering</td>
<td>1</td>
</tr>
<tr>
<td>MIN F104</td>
<td>Mining Safety and Operations Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MIN F202</td>
<td>Mine Surveying</td>
<td>3</td>
</tr>
<tr>
<td>MIN F225</td>
<td>Quantitative Methods in Mining Engineering</td>
<td>2</td>
</tr>
<tr>
<td>MIN F226</td>
<td>Mine Development</td>
<td>2</td>
</tr>
<tr>
<td>MIN F301</td>
<td>Mine Plant Design</td>
<td>3</td>
</tr>
<tr>
<td>MIN F302</td>
<td>Underground Mine Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MIN F313</td>
<td>Introduction to Mineral Preparation</td>
<td>3</td>
</tr>
<tr>
<td>MIN F370</td>
<td>Rock Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MIN F407</td>
<td>Mine Reclamation and Environmental Management</td>
<td>3</td>
</tr>
<tr>
<td>MIN F408</td>
<td>Mineral Valuation and Economics</td>
<td>3</td>
</tr>
<tr>
<td>MIN F409</td>
<td>Operations Research and Computer Applications in Mineral Industry</td>
<td>3</td>
</tr>
<tr>
<td>MIN F443</td>
<td>Principles and Applications of Industrial Explosives</td>
<td>3</td>
</tr>
<tr>
<td>MIN F454</td>
<td>Underground Mining Methods</td>
<td>3</td>
</tr>
<tr>
<td>MIN F482</td>
<td>Computer-aided Mine Design:VULCAN</td>
<td>3</td>
</tr>
<tr>
<td>MIN F484</td>
<td>Surface Mining Methods</td>
<td>2</td>
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<tr>
<td>MIN F489</td>
<td>Mining Design Project I 1</td>
<td>1</td>
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<tr>
<td>MIN F490</td>
<td>Mining Design Project II 1</td>
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<tr>
<td>MIN F485</td>
<td>Mining Engineering Exit Interview</td>
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<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recommended Technical Electives**

- CE F603 Arctic Engineering
- Complete 3 credits from the following: 2 credits
  - GE F440 Slope Stability
  - MIN F401 Mine Site Field Trips

**Minor, Mining Engineering**

**Minimum Requirements for Minor: 15 credits**
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MIN F103</td>
<td>Introduction to Mining Engineering</td>
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<td>MIN F104</td>
<td>Mining Safety and Operations Laboratory</td>
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</tr>
<tr>
<td>MIN F226</td>
<td>Mine Development</td>
<td>2</td>
</tr>
</tbody>
</table>

Complete 11-12 MIN credits from advisor-approved electives at 300 or 400 level

**Music**

College of Liberal Arts
Department of Music
907-474-7555
http://www.uaf.edu/music/

**B.A., B.M. Degrees**

Minimum Requirements for Degrees: B.A.: 120 credits; B.M.: 122-145 credits

The music curriculum is designed to satisfy cultural and professional objectives. The B.A. degree in music provides a broad, liberal education options for concentrations in general music, music theory, music history and music composition. The B.M. degree in music education offers thorough preparation in teacher training and develops excellence in music performance areas. The B.M. degree in music performance offers intensive specialization for those desiring professional training in music performance.

The Music Department is a full member of the National Association of Schools of Music, the national accrediting organization.

**NOTES FOR ALL UNDERGRADUATE MUSIC DEGREES**

The various programs, music ensembles and organizations in the department offer opportunities for students in all academic divisions of the university. Music majors are required to earn a minimum of 4 large ensemble credits in the B.A. program, a minimum of 6 large ensemble credits in the B.M. music education program, and a minimum of 8 large ensemble credits in the B.M. music performance program. Large ensembles include: MUS F101, MUS F117, MUS F203, MUS F205, MUS F211. Wind and percussion instrumentalists are required to take a
minimum of 4 credits in MUS F205. Piano majors may substitute up to 2 credits of MUS F307.

Each student (major or non-major) who enrolls in private applied lessons must be concurrently enrolled in a large ensemble. Requirements for students registered for class lessons vary with disciplines and are at the discretion of the instructor.

Attendance at recitals and concerts provides students with a variety of musical experiences that expand their regular curriculum. Registration for MUS F190 recital attendance is mandatory until majors and minors have passed the number of semesters required for their program: two semesters for the minor, four semesters for the B.A., six semesters for the B.M. in music education, and eight semesters for the B.A. in music performance. All applied music students enrolled in MUS F261 or higher are required to perform in at least one Music at One program during each semester of study.

At the end of each semester, all music majors must demonstrate a satisfactory level of proficiency of performance (Performance Juries) in their applied instrumental area in order to advance to the next level of study. At the discretion of music faculty, a student may be held at the F200 level to further prepare to pass requirements for admission to upper-division study. Competency levels required for each degree must be achieved in one applied instrumental area.

Music students must earn a C grade or better for each music course in their major program in order for that course to count as a completed degree requirement. MUS F493 is repeatable for up to 6 credits. MUS F307, MUS F313, MUS F317 are repeatable for credit. MUS F161–MUS F162, MUS F261–MUS F262, MUS F361–MUS F362, MUS F461–MUS F462 are repeatable up to 6 credits.

### Degrees

- **B.A., Music** (p. 233)
- **B.M., Music (Performance)** (p. 235)
- **B.M., Music Education** (p. 234)

### Minor

- **Minor, Music** (p. 236)

### B.A., Music

**Concentrations:** General, Music Theory, Music History, Music Composition

#### Minimum Requirements for Degree: 120 credits

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td><strong>General University Requirements</strong></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td><strong>General Education Requirements</strong></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td><strong>B.A. Degree Requirements</strong></td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
<td></td>
</tr>
<tr>
<td><strong>Audition</strong></td>
<td>Complete an audition on the major instrument.</td>
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<tr>
<td><strong>Program Requirements</strong></td>
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<tr>
<td>MUS F131 and MUS F132</td>
<td>Basic Music Theory I and Basic Music Theory II</td>
<td>6</td>
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<tr>
<td>MUS F133 and MUS F134</td>
<td>Basic Ear Training I and Basic Ear Training II</td>
<td>4</td>
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<tr>
<td>MUS F152 and MUS F153 and MUS F154</td>
<td>Functional Piano I and Functional Piano II and Functional Piano III</td>
<td>3</td>
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<tr>
<td>MUS F161 and MUS F162 and MUS F261 and MUS F262</td>
<td>Private Lessons and Private Lessons</td>
<td>8</td>
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<tr>
<td>MUS F190</td>
<td>Recital Attendance</td>
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<tr>
<td>MUS F221 and MUS F222</td>
<td>History of Western Music I and History of Western Music II</td>
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<td>MUS F223X</td>
<td>Alaska Native Music</td>
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<tr>
<td>MUS F231 and MUS F232</td>
<td>Advanced Music Theory I and Advanced Music Theory II</td>
<td>4</td>
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<tr>
<td>MUS F233 and MUS F234</td>
<td>Advanced Ear Training I and Advanced Ear Training II</td>
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<tr>
<td>MUS F253</td>
<td>Piano Proficiency</td>
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<td>MUS F331</td>
<td>Form and Analysis</td>
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<tr>
<td>MUS F476</td>
<td>Senior Project</td>
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<tr>
<td><strong>Large ensembles</strong></td>
<td>Complete one of the following concentrations: 21-24</td>
<td></td>
</tr>
<tr>
<td><strong>Concentrations</strong></td>
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<tr>
<td><strong>General</strong></td>
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<tr>
<td><strong>Music Theory</strong></td>
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<td><strong>Music History</strong></td>
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<tr>
<td><strong>Music Composition</strong></td>
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</table>

1. As necessary to complete piano proficiency requirements.
2. Students with voice as their major instrument are also required to complete MUS F245 or MUS F246.
3. Enrollment only following completion of piano proficiency requirements.
4. Fulfills the baccalaureate capstone requirement.
5. Music majors in the B.A. program will be required to earn a minimum of 4 credits in large ensembles: MUS F101, MUS F117, MUS F203, MUS F205, MUS F211. Please work closely with your faculty advisor to determine which large ensemble course will fulfill this requirement.

**Concentrations**

### GENERAL

Complete 12 credits from the following: 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUS F410</td>
<td>Women in Music History</td>
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<tr>
<td>MUS F421</td>
<td>Music Before 1620</td>
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</tr>
<tr>
<td>MUS F422</td>
<td>Music in the 17th and 18th Centuries</td>
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<tr>
<td>MUS F423</td>
<td>Music of the 19th Century</td>
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<tr>
<td>MUS F424</td>
<td>Music Since 1900</td>
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<tr>
<td>MUS F431</td>
<td>Counterpoint</td>
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<tr>
<td>MUS F432</td>
<td>Orchestration and Arranging</td>
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</table>

Complete 9 credits from the following: 9

<table>
<thead>
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<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MUS F207</td>
<td>UAF Jazz Band</td>
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</table>
MUS F307 Chamber Music
MUS F351 Conducting
MUS F361 Private Lessons (major area)
MUS F362 Private Lessons (major area)
MUS F426 Music Literature
MUS F433 Seminar in Musical Composition
MUS F434 Advanced Harmonic Analysis

MUSIC THEORY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>MUS F431</td>
<td>Counterpoint</td>
<td>3</td>
</tr>
<tr>
<td>MUS F432</td>
<td>Orchestration and Arranging</td>
<td>3</td>
</tr>
<tr>
<td>MUS F433</td>
<td>Seminar in Musical Composition</td>
<td>3</td>
</tr>
<tr>
<td>MUS F434</td>
<td>Advanced Harmonic Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F410</td>
<td>Women in Music History</td>
<td></td>
</tr>
<tr>
<td>MUS F421</td>
<td>Music Before 1620</td>
<td></td>
</tr>
<tr>
<td>MUS F422</td>
<td>Music in the 17th and 18th Centuries</td>
<td></td>
</tr>
<tr>
<td>MUS F423</td>
<td>Music of the 19th Century</td>
<td></td>
</tr>
<tr>
<td>MUS F424</td>
<td>Music Since 1900</td>
<td></td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F207</td>
<td>UAF Jazz Band</td>
<td></td>
</tr>
<tr>
<td>MUS F307</td>
<td>Chamber Music</td>
<td></td>
</tr>
<tr>
<td>MUS F332</td>
<td>Introduction to Computer-based Music Technology</td>
<td></td>
</tr>
<tr>
<td>MUS F351</td>
<td>Conducting</td>
<td></td>
</tr>
<tr>
<td>MUS F361</td>
<td>Private Lessons (major area)</td>
<td></td>
</tr>
<tr>
<td>MUS F362</td>
<td>Private Lessons (major area)</td>
<td></td>
</tr>
<tr>
<td>MUS F426</td>
<td>Music Literature</td>
<td></td>
</tr>
<tr>
<td>MUS F435</td>
<td>Private Lessons in Music Composition</td>
<td></td>
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MUSIC HISTORY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MUS F421</td>
<td>Music Before 1620</td>
<td>3</td>
</tr>
<tr>
<td>MUS F422</td>
<td>Music in the 17th and 18th Centuries</td>
<td>3</td>
</tr>
<tr>
<td>MUS F423</td>
<td>Music of the 19th Century</td>
<td>3</td>
</tr>
<tr>
<td>MUS F424</td>
<td>Music Since 1900</td>
<td>3</td>
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Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>MUS F410</td>
<td>Women in Music History</td>
<td></td>
</tr>
<tr>
<td>MUS F426</td>
<td>Music Literature</td>
<td></td>
</tr>
<tr>
<td>MUS F431</td>
<td>Counterpoint</td>
<td></td>
</tr>
<tr>
<td>MUS F432</td>
<td>Advanced Harmonic Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

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</tr>
<tr>
<td>MUS F351</td>
<td>Conducting</td>
<td></td>
</tr>
<tr>
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<td>Private Lessons (major area)</td>
<td></td>
</tr>
<tr>
<td>MUS F362</td>
<td>Private Lessons (major area)</td>
<td></td>
</tr>
<tr>
<td>MUS F432</td>
<td>Orchestration and Arranging</td>
<td></td>
</tr>
</tbody>
</table>

**MUSIC COMPOSITION**

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>MUS F432</td>
<td>Orchestration and Arranging</td>
<td>3</td>
</tr>
<tr>
<td>MUS F433</td>
<td>Seminar in Musical Composition</td>
<td>3</td>
</tr>
<tr>
<td>MUS F435</td>
<td>Private Lessons in Music Composition</td>
<td>2-4</td>
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</table>

Complete 6 credits from the following:

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<tr>
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<td>Music of the 19th Century</td>
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</tr>
<tr>
<td>MUS F424</td>
<td>Music Since 1900</td>
<td></td>
</tr>
<tr>
<td>MUS F426</td>
<td>Music Literature</td>
<td></td>
</tr>
<tr>
<td>MUS F434</td>
<td>Advanced Harmonic Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

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<td>MUS F332</td>
<td>Introduction to Computer-based Music Technology</td>
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<td>Conducting</td>
<td></td>
</tr>
<tr>
<td>MUS F361</td>
<td>Private Lessons (major area)</td>
<td></td>
</tr>
<tr>
<td>MUS F362</td>
<td>Private Lessons (major area)</td>
<td></td>
</tr>
<tr>
<td>MUS F431</td>
<td>Counterpoint</td>
<td></td>
</tr>
</tbody>
</table>

**B.M., Music Education**

Complete the following B.M. degree admission requirement:

1. Audition on the major instrument

**Concentrations: Elementary, Secondary, K-12**

**Minimum Requirements for Degree: 130-145 credits**

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F131</td>
<td>and MUS F132 Basic Music Theory I</td>
<td>6</td>
</tr>
</tbody>
</table>

**General University Requirements**

Complete the general university requirements. (p. 142)

**General Education Requirements**

Complete the general education requirements. (p. 145)

**Degree and Program Requirements**

**Large ensembles**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED/PSY F245</td>
<td>Child Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F420</td>
<td>Alaska Native Education</td>
<td>3</td>
</tr>
<tr>
<td>or ED F461</td>
<td>Native Ways of Knowing</td>
<td></td>
</tr>
<tr>
<td>EDSE F482</td>
<td>Inclusive Classrooms for All Children</td>
<td>3</td>
</tr>
<tr>
<td>or EDSE F316</td>
<td>Introduction to Special Education for Elementary Classroom Teachers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUED F110</td>
<td>Becoming a Music Teacher in the 21st Century</td>
<td>2</td>
</tr>
<tr>
<td>MUED F201</td>
<td>Introduction to Music Education</td>
<td>2</td>
</tr>
<tr>
<td>MUED F315</td>
<td>Music Methods and Techniques</td>
<td>2</td>
</tr>
<tr>
<td>MUED F316</td>
<td>Practicum in Middle-level Music Methods</td>
<td>1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F313</td>
<td>Basic Music Theory I</td>
<td>6</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credits</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>MUS F133</td>
<td>Basic Ear Training I</td>
<td>4</td>
</tr>
<tr>
<td>and MUS F134</td>
<td>and Basic Ear Training II</td>
<td></td>
</tr>
<tr>
<td>MUS F152</td>
<td>Functional Piano I</td>
<td>3</td>
</tr>
<tr>
<td>and MUS F153</td>
<td>and Functional Piano II</td>
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<tr>
<td>and MUS F154</td>
<td>and Functional Piano III</td>
<td></td>
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<tr>
<td>MUS F161</td>
<td>Private Lessons</td>
<td>14</td>
</tr>
<tr>
<td>and MUS F162</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F261</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F262</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F361</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F362</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>MUS F190</td>
<td>Recital Attendance</td>
<td>0</td>
</tr>
<tr>
<td>MUS F221</td>
<td>History of Western Music I</td>
<td>6</td>
</tr>
<tr>
<td>and MUS F222</td>
<td>and History of Western Music II</td>
<td></td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td>3</td>
</tr>
<tr>
<td>MUS F231</td>
<td>Advanced Music Theory I</td>
<td>4</td>
</tr>
<tr>
<td>and MUS F232</td>
<td>and Advanced Music Theory II</td>
<td></td>
</tr>
<tr>
<td>MUS F233</td>
<td>Advanced Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>and MUS F234</td>
<td>and Advanced Ear Training II</td>
<td></td>
</tr>
<tr>
<td>MUS F253</td>
<td>Piano Proficiency</td>
<td>0</td>
</tr>
<tr>
<td>MUS F331</td>
<td>Form and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MUS F351</td>
<td>Conducting</td>
<td>3</td>
</tr>
<tr>
<td>MUS F390</td>
<td>Junior Recital</td>
<td>0</td>
</tr>
<tr>
<td>MUS F432</td>
<td>Orchestration and Arranging</td>
<td>3</td>
</tr>
</tbody>
</table>

## Concentrations

Complete one of the following concentrations:

### 6-21

#### Elementary

#### Secondary

### K-12

|^|---|---|
| K-12 | 1 | 2 |

1. Music majors in the B.M. program will be required to earn a minimum of 6 credits in large ensembles: MUS F101, MUS F117, MUS F203, MUS F205, MUS F211. Please work closely with your faculty advisor to determine which large ensemble course will fulfill this requirement.

2. Students with voice as their major instrument are also required to complete MUS F245 or MUS F246.

### Note:

Music education majors must have completed the necessary prerequisites and be admitted to the teacher education program prior to acceptance for placement in student teaching.

## Concentrations

### ELEMENTARY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F452</td>
<td>Elementary Internship</td>
<td>3-12</td>
</tr>
<tr>
<td>MUED F309</td>
<td>Elementary School Music Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

### SECONDARY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F453</td>
<td>Secondary Internship</td>
<td>3-12</td>
</tr>
<tr>
<td>MUED F405</td>
<td>Secondary School Music Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

## K-12

### Code | Title | Credits

|Complete the following:

<table>
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<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>MUED F309</td>
<td>Elementary School Music Methods</td>
<td>3</td>
</tr>
<tr>
<td>MUED F405</td>
<td>Secondary School Music Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Fulfills the baccalaureate capstone requirement.

## B.M., Music Performance

### B.M. degree admission requirement:

1. Audition on the major instrument

### Minimum Requirements for Degree: 122 credits

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F131</td>
<td>Basic Music Theory I</td>
<td>6</td>
</tr>
<tr>
<td>and MUS F132</td>
<td>and Basic Music Theory II</td>
<td></td>
</tr>
<tr>
<td>MUS F152</td>
<td>Functional Piano I</td>
<td>3</td>
</tr>
<tr>
<td>and MUS F153</td>
<td>and Functional Piano II</td>
<td></td>
</tr>
<tr>
<td>and MUS F154</td>
<td>and Functional Piano III</td>
<td></td>
</tr>
<tr>
<td>MUS F161</td>
<td>Private Lessons</td>
<td>24</td>
</tr>
<tr>
<td>and MUS F162</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F261</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F262</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F361</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F362</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>MUS F221</td>
<td>History of Western Music I</td>
<td>6</td>
</tr>
<tr>
<td>and MUS F222</td>
<td>and History of Western Music II</td>
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</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td>3</td>
</tr>
<tr>
<td>MUS F231</td>
<td>Advanced Music Theory I</td>
<td>4</td>
</tr>
<tr>
<td>and MUS F232</td>
<td>and Advanced Music Theory II</td>
<td></td>
</tr>
<tr>
<td>MUS F233</td>
<td>Advanced Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>and MUS F234</td>
<td>and Advanced Ear Training II</td>
<td></td>
</tr>
<tr>
<td>MUS F253</td>
<td>Piano Proficiency</td>
<td>0</td>
</tr>
<tr>
<td>MUS F331</td>
<td>Form and Analysis</td>
<td>3</td>
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<tr>
<td>MUS F351</td>
<td>Conducting</td>
<td>3</td>
</tr>
<tr>
<td>MUS F390</td>
<td>Junior Recital</td>
<td>0</td>
</tr>
<tr>
<td>MUS F432</td>
<td>Orchestration and Arranging</td>
<td>3</td>
</tr>
<tr>
<td>MUS F190</td>
<td>Recital Attendance</td>
<td>0</td>
</tr>
<tr>
<td>MUS F490</td>
<td>Senior Recital</td>
<td>4</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

### Code | Title | Credits

|Complete the following:

### General University Requirements

Complete the general university requirements. (p. 142)

### General Education Requirements

Complete the general education requirements. (p. 145)

As part of the general education requirements, voice majors must complete:

10 credits foreign language

### Degree and Program Requirements

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<td></td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td>3</td>
</tr>
<tr>
<td>MUS F231</td>
<td>Advanced Music Theory I</td>
<td>4</td>
</tr>
<tr>
<td>and MUS F232</td>
<td>and Advanced Music Theory II</td>
<td></td>
</tr>
<tr>
<td>MUS F233</td>
<td>Advanced Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>and MUS F234</td>
<td>and Advanced Ear Training II</td>
<td></td>
</tr>
<tr>
<td>MUS F253</td>
<td>Piano Proficiency</td>
<td>0</td>
</tr>
<tr>
<td>MUS F331</td>
<td>Form and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MUS F351</td>
<td>Conducting</td>
<td>3</td>
</tr>
<tr>
<td>MUS F390</td>
<td>Junior Recital</td>
<td>0</td>
</tr>
<tr>
<td>Large ensembles</td>
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<td>8</td>
</tr>
<tr>
<td>MUS F190</td>
<td>Recital Attendance</td>
<td>0</td>
</tr>
<tr>
<td>MUS F490</td>
<td>Senior Recital</td>
<td>4</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

### General University Requirements

Complete the general university requirements. (p. 142)

### General Education Requirements

Complete the general education requirements. (p. 145)

As part of the general education requirements, voice majors must complete:

10 credits foreign language

### Degree and Program Requirements

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</thead>
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</tr>
<tr>
<td>and MUS F132</td>
<td>and Basic Music Theory II</td>
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</tr>
<tr>
<td>MUS F152</td>
<td>Functional Piano I</td>
<td>3</td>
</tr>
<tr>
<td>and MUS F153</td>
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<td>and Private Lessons</td>
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</tr>
<tr>
<td>and MUS F361</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>and MUS F362</td>
<td>and Private Lessons</td>
<td></td>
</tr>
<tr>
<td>MUS F221</td>
<td>History of Western Music I</td>
<td>6</td>
</tr>
<tr>
<td>and MUS F222</td>
<td>and History of Western Music II</td>
<td></td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td>3</td>
</tr>
<tr>
<td>MUS F231</td>
<td>Advanced Music Theory I</td>
<td>4</td>
</tr>
<tr>
<td>and MUS F232</td>
<td>and Advanced Music Theory II</td>
<td></td>
</tr>
<tr>
<td>MUS F233</td>
<td>Advanced Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>and MUS F234</td>
<td>and Advanced Ear Training II</td>
<td></td>
</tr>
<tr>
<td>MUS F253</td>
<td>Piano Proficiency</td>
<td>0</td>
</tr>
<tr>
<td>MUS F331</td>
<td>Form and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MUS F351</td>
<td>Conducting</td>
<td>3</td>
</tr>
<tr>
<td>MUS F390</td>
<td>Junior Recital</td>
<td>0</td>
</tr>
<tr>
<td>Large ensembles</td>
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<td>8</td>
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<tr>
<td>MUS F190</td>
<td>Recital Attendance</td>
<td>0</td>
</tr>
<tr>
<td>MUS F490</td>
<td>Senior Recital</td>
<td>4</td>
</tr>
</tbody>
</table>
Minor, Music

Minimum Requirements for Minor: 18 credits

Students must earn a C grade or better in each course.

Students must select from one of the options below:

**OPTION A (NONPERFORMANCE EMPHASIS)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete 12 credits from the following:</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>MUS F103X</td>
<td>Music Fundamentals</td>
<td></td>
</tr>
<tr>
<td>MUS F122</td>
<td>History of Popular Music</td>
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</tr>
<tr>
<td>MUS F124</td>
<td>Music in World Cultures</td>
<td></td>
</tr>
</tbody>
</table>

**OPTION B (PERFORMANCE EMPHASIS)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete 6 credits from the following courses:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>MUS F103X</td>
<td>Music Fundamentals</td>
<td></td>
</tr>
<tr>
<td>MUS F122</td>
<td>History of Popular Music</td>
<td></td>
</tr>
<tr>
<td>MUS F124</td>
<td>Music in World Cultures</td>
<td></td>
</tr>
<tr>
<td>MUS F131</td>
<td>Basic Music Theory I</td>
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</tr>
<tr>
<td>MUS F132</td>
<td>Basic Music Theory II</td>
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<td>MUS F133</td>
<td>Basic Ear Training I</td>
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<td>MUS F134</td>
<td>Basic Ear Training II</td>
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<tr>
<td>MUS F221</td>
<td>History of Western Music I</td>
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<tr>
<td>MUS F222</td>
<td>History of Western Music II</td>
<td></td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td></td>
</tr>
<tr>
<td>MUS F231</td>
<td>Advanced Music Theory I</td>
<td></td>
</tr>
<tr>
<td>MUS F232</td>
<td>Advanced Music Theory II</td>
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</tr>
<tr>
<td>MUS F410</td>
<td>Women in Music History</td>
<td></td>
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<tr>
<td>MUS F421</td>
<td>Music Before 1620</td>
<td></td>
</tr>
<tr>
<td>MUS F422</td>
<td>Music in the 17th and 18th Centuries</td>
<td></td>
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<tr>
<td>MUS F423</td>
<td>Music of the 19th Century</td>
<td></td>
</tr>
<tr>
<td>MUS F424</td>
<td>Music Since 1900</td>
<td></td>
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</table>

**1.** Selection of the language will be made in consultation with the voice advisor.

**2.** Students with voice as their major instrument are also required to complete MUS F245 or MUS F246.

**3.** Music majors in the B.M. program will be required to earn a minimum of 8 credits in large ensembles: MUS F101, MUS F117, MUS F203, MUS F205, MUS F211. Students should work closely with their faculty advisor to determine which large ensemble course will fulfill this requirement.

**4.** Fulfills the baccalaureate capstone requirement.

**5.** Courses listed that are not already applied to program requirements may also meet this requirement.
Complete 4 credits from the following music ensemble courses:

MUS F101 University Chorus
MUS F117 Northern Lights String Orchestra
MUS F203 Fairbanks Symphony Orchestra
MUS F205 Wind Symphony
MUS F211 Choir of the North

Complete 8 credits from the following courses in private lessons or chamber music:

MUS F161 Private Lessons
MUS F162 Private Lessons
MUS F190 Recital Attendance (two semesters)
MUS F207 UAF Jazz Band
MUS F261 Private Lessons
MUS F262 Private Lessons
MUS F307 Chamber Music
MUS F361 Private Lessons
MUS F362 Private Lessons
MUS F461 Private Lessons
MUS F462 Private Lessons

Note: No substitutions are permitted between options. It is recommended that students contact the Music Department for program advising before registering for music classes. All performance courses are subject to course enrollment and studio space limitations. Large ensemble courses are available subject to current vacancies for particular instrumental areas. Private lessons and large ensemble courses may require that students pass a performance audition. Prerequisite requirements apply.

Natural Resources and Environment

School of Natural Resources and Extension
907-474-7188
http://www.uaf.edu/snre/

B.S. Degree

Minimum Requirements for Degree: 120 credits

The sustainability of society and its environment require an interdisciplinary approach to making and implementing natural resource and environmental decisions. The natural resources and environment minor strengthens students' degree programs by providing a broad introduction into how natural and social sciences, the humanities, and policy should be integrated in order to make well-founded decisions.

Degree

• B.S., Natural Resources and Environment (p. 237)

Minor

• Minor, Natural Resources and Environment (p. 238)
• Minor, Forest Management (p. 238)
• Minor, Sustainable Agriculture (p. 238)

B.S., Natural Resources and Environment

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td><strong>General University Requirements</strong></td>
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<tr>
<td>Complete the general university requirements. (p. 142)</td>
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<tr>
<td><strong>General Education Requirements</strong></td>
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<tr>
<td>Complete the general education requirements. (p. 145)</td>
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<tr>
<td>As part of the general education requirements, complete:</td>
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</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>As part of the general education requirements, complete one of the following:</td>
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<td></td>
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<tr>
<td>MATH F230X</td>
<td>Essential Calculus with Applications</td>
<td></td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
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<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
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<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
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<tr>
<td><strong>B.S. Degree Requirements</strong></td>
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<td></td>
</tr>
<tr>
<td>Complete the B.S. degree requirements. (p. 154)</td>
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</tr>
<tr>
<td>As part of the B.S. degree requirements, complete:</td>
<td></td>
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</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
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<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td></td>
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<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions</td>
<td></td>
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<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td></td>
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<tr>
<td><strong>Program Requirements</strong></td>
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<td></td>
</tr>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
<td>3</td>
</tr>
<tr>
<td>NRM F111</td>
<td>Introduction to Sustainability Science</td>
<td>3</td>
</tr>
<tr>
<td>NRM F210</td>
<td>Principles of Sustainable Agriculture</td>
<td>3</td>
</tr>
<tr>
<td>NRM F240</td>
<td>Natural Resources Measurement and Inventory</td>
<td>3</td>
</tr>
<tr>
<td>NRM F277</td>
<td>Introduction to Conservation Biology</td>
<td>3</td>
</tr>
<tr>
<td>NRM F290</td>
<td>Resource Management Issues at High Latitudes</td>
<td>2</td>
</tr>
<tr>
<td>NRM F366</td>
<td>Survey Research in Natural Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM F370</td>
<td>Introduction to Watershed Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM F375</td>
<td>Natural Resource Ecology</td>
<td>3</td>
</tr>
<tr>
<td>NRM F380</td>
<td>Soils and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>NRM F403</td>
<td>Environmental Decision-Making</td>
<td>3</td>
</tr>
<tr>
<td>NRM F430</td>
<td>Resource Management Planning</td>
<td>3</td>
</tr>
<tr>
<td>NRM F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td>1</td>
</tr>
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</table>

GIS Courses
Complete one from the following:

NRM F338  | Introduction to Geographic Information Systems | 3
NRM F369  | GIS and Remote Sensing for Natural Resources | 3
Minor, Forest Management

Minimum Requirements for Minor: 16 credits

Students must earn a C grade or better in each course.

Potential accreditation as a certified forester by the Society of American Foresters will require completion of the following NRM courses: NRM F251, NRM F440, NRM F450, NRM F452 and NRM F453 in combination with the NRM B.S. degree (p. 237). Prerequisites required for the courses listed are part of the NRM degree program, but students from other programs will be required to complete the prerequisites specified for individual classes. NRM F452 also requires the completion of either BIOL F239 or NRM F211 as a requisite. These two courses are not required for the general NRM program and will not apply to the number of credits for the forest management minor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F240</td>
<td>Natural Resources Measurement and Inventory</td>
<td>3</td>
</tr>
<tr>
<td>NRM F251</td>
<td>Silvics and Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NRM F375</td>
<td>Natural Resource Ecology</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL F371</td>
<td>Principles of Ecology</td>
<td></td>
</tr>
</tbody>
</table>

Complete at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>NRM F370</td>
<td>Introduction to Watershed Management</td>
</tr>
<tr>
<td>NRM F440</td>
<td>Silviculture</td>
</tr>
<tr>
<td>NRM F450</td>
<td>Forest Management</td>
</tr>
<tr>
<td>NRM F452</td>
<td>Forest Health and Protection</td>
</tr>
<tr>
<td>NRM F453</td>
<td>Harvesting and Utilization of Forest Products</td>
</tr>
</tbody>
</table>

Note: Students must complete at least 16 credits dedicated to the minor. If the student has taken courses to complete major requirements, the credits must be made up from additional minor-specific courses.

Minor, Natural Resources and Environment

Minimum Requirements for Minor: 18 credits

Students must earn a C grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
<td>3</td>
</tr>
<tr>
<td>NRM F210</td>
<td>Principles of Sustainable Agriculture</td>
<td>3</td>
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</table>

Complete three of the following:

<table>
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<th>Title</th>
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<tbody>
<tr>
<td>NRM F211</td>
<td>Introduction to Applied Plant Science</td>
</tr>
<tr>
<td>NRM F220</td>
<td>Introduction to Animal Science</td>
</tr>
<tr>
<td>NRM F380</td>
<td>Soils and the Environment</td>
</tr>
<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions</td>
</tr>
<tr>
<td>NRM F403</td>
<td>Environmental Decision-Making</td>
</tr>
</tbody>
</table>

Note: Students majoring in NRM are not eligible for the sustainable agriculture minor.

Petroleum Engineering

College of Engineering and Mines
Department of Petroleum Engineering
907-474-7734
http://cem.uaf.edu/pete/

B.S. Degree

Minimum Requirements for Degree: 133 credits

The mission of the petroleum engineering program is to provide its students with quality education and training in the field of petroleum engineering through effective teaching, research and public service, with emphasis on Alaska petroleum resources.

Petroleum engineering offers a unique look at the challenging problems confronting the petroleum industry. This program requires an understanding of many disciplines including mathematics, physics, chemistry, geology and engineering science. Courses in petroleum engineering deal with drilling, formation evaluation, production, reservoir engineering, computer simulation and enhanced oil recovery.
curriculum prepares graduates to meet the demands of modern technology while emphasizing, whenever possible, the special problems encountered in Alaska. Located in one of the largest oil-producing states in the nation, the UAF petroleum engineering department offers one of the most modern and challenging degree programs available.

The petroleum engineering program educational objectives are:

1. Our graduates will have successful careers in the oil and gas industry by using technical knowledge and skills acquired to analyze real-world petroleum engineering problems, develop innovative solutions, and communicate these to meet the needs of multiple stakeholders.
2. Our graduates will demonstrate professionalism through continuing professional development throughout their career, and commitment to ethical standards and lifelong learning.
3. Our graduates will contribute significantly to the global petroleum engineering profession and they will exemplify the behaviors necessary to become industry leaders within and beyond Alaska.

For more information about the petroleum engineering program mission, goals and educational objectives, visit http://cem.uaf.edu/pete/abet/.

Degree

• B.S., Petroleum Engineering (p. 239)

B.S., Petroleum Engineering

Minimum Requirements for Degree: 133 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PETE F302</td>
<td>Well Logging</td>
<td>3</td>
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<tr>
<td>PETE F303</td>
<td>Reservoir Rock and Fluid Properties Laboratory</td>
<td>1</td>
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<tr>
<td>PETE/GEOS F370</td>
<td>Sedimentology and Structural Geology for Petroleum Engineers</td>
<td>4</td>
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<tr>
<td>PETE F407</td>
<td>Petroleum Production Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PETE F411</td>
<td>Drilling Fluids Laboratory</td>
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<tr>
<td>PETE F421</td>
<td>Applied Reservoir Characterization</td>
<td>3</td>
</tr>
<tr>
<td>PETE F426</td>
<td>Drilling Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PETE F431</td>
<td>Natural Gas Engineering</td>
<td>2</td>
</tr>
<tr>
<td>PETE F456</td>
<td>Petroleum Evaluation and Economic Decisions</td>
<td>3</td>
</tr>
<tr>
<td>PETE F466</td>
<td>Petroleum Recovery Methods</td>
<td>3</td>
</tr>
<tr>
<td>PETE F476</td>
<td>Petroleum Reservoir Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PETE F478</td>
<td>Well Test Analysis</td>
<td>2</td>
</tr>
<tr>
<td>PETE F481</td>
<td>Well Completions and Stimulation Design</td>
<td>3</td>
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<tr>
<td>PETE F487A</td>
<td>Petroleum Project Design</td>
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</tr>
<tr>
<td>PETE F487B</td>
<td>Petroleum Project Design</td>
<td>1</td>
</tr>
<tr>
<td>PETE F489</td>
<td>Reservoir Simulation</td>
<td>2</td>
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<tr>
<td>PETE F487A</td>
<td>Engineering elective</td>
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<tr>
<td>Technical elective</td>
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</table>

Program Requirements

MATH F253X Calculus III 4
MATH F302 Differential Equations 3
MATH F310 Numerical Analysis 3
or ES F301 Engineering Analysis 3

Fundamentals of Engineering (FE) Examination
Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

Philosophy

College of Liberal Arts
Philosophy and Humanities Department
907-474-7007
http://www.uaf.edu/philo/

B.A. Degree, Minor

Minimum Requirements for Degree: 120 credits

The courses in philosophy are designed to confront students with fundamental problems of both Western and non-Western philosophical heritages and to introduce students to independent reflection on them, thus broadening their perspectives for various areas of specialization in science, the social sciences and humanities.
Degrees
- B.A., Philosophy
- Minor, Philosophy

Minor, Philosophy

Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHIL F102X</td>
<td>Introduction to Philosophy</td>
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<tr>
<td>PHIL F351</td>
<td>History of Ancient Greek Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL F352</td>
<td>History of Modern Philosophy: Descartes to Kant</td>
<td>3</td>
</tr>
<tr>
<td>PHIL elective at the F400 level</td>
<td>3</td>
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</table>

Complete two from the following: [6 credits]

- PHIL F104X Logic and Reasoning
- PHIL F108 Critical and Quantitative Thinking
- PHIL F110 Introduction to Political Philosophy
- PHIL F202 Introduction to Eastern Philosophy
- PHIL F322X Ethics
- PHIL F341 Theories of Knowledge
- PHIL F342 Theories of Reality
- PHIL F353 Survey of Buddhist Thought
- PHIL F361 Philosophy in Literature
- PHIL F381 Topics in Logics
- PHIL F402 Biomedical and Research Ethics
- PHIL/PS F411 Classical Political Theory
- PHIL/PS F412 Modern Political Theory
- PHIL F421 Aesthetics
- PHIL F472 Ethics in International Affairs
- PHIL F481 Philosophy of Science
- PHIL F482 Comparative Philosophy and Religions
- PHIL F485 Topics in Comparative Philosophies
- PHIL F487 Conceptual Issues in Evolutionary Biology

1 PHIL F322X may not be counted toward a philosophy minor if used to fulfill B.A. degree requirements.

Physics

College of Natural Science and Mathematics
Department of Physics
907-474-7339
http://www.uaf.edu/physics/

B.S. Degree

Minimum Requirements for Degree: 120 credits

Physics, together with mathematics and chemistry, provides the foundation for work in all fields of the physical sciences and engineering, and contributes greatly to other disciplines such as the biosciences and medicine.

The undergraduate curriculum provides a solid foundation in classical and modern physics, with emphasis on both its experimental and theoretical aspects. A student completing this curriculum can be well-prepared for advanced study in physics and related sciences, and for other careers in industry, government or the private sector that require refined abilities in problem-solving.

The **physics** concentration represents the classical undergraduate physics curriculum, while the **applied physics** concentration provides a solid foundation in general physics with the flexibility to include applied or interdisciplinary course work, aimed at e.g., engineering physics, biophysics or oceanography.

The **atmospheric physics** concentration is a solid foundation at the interface of physics, climate sciences and meteorology. The **computational physics** concentration is relevant for students seeking careers in any areas that require expertise in computational modeling and simulation of physical systems.

The **technical management** concentration provides an opportunity to combine basic knowledge of physics with an aptitude for leadership in business. Declared physics majors in good standing with appropriate grades, department mentoring and approval for some courses are, upon graduation, welcome to apply to the MBA program in UAF’s School of Management.

Degree
- B.S., Physics

Minor
- Minor, Physics

B.S., Physics

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
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<th>Credits</th>
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<tr>
<td>MATH F251X</td>
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<td>B.S. Degree Requirements</td>
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<td>Complete the B.S. degree requirements. (p. 154)</td>
<td></td>
<td></td>
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</table>

As part of the B.S. degree requirements, complete:

<table>
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<th>Credits</th>
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<td>PHYS F211X</td>
<td>General Physics I</td>
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<tr>
<td>PHYS F212X</td>
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Program Requirements

<table>
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<tr>
<td>PHYS F213X</td>
<td>Elementary Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F220</td>
<td>Introduction to Computational Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F301</td>
<td>Introduction to Mathematical Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F341</td>
<td>Classical Physics I: Particle Mechanics</td>
<td>4</td>
</tr>
</tbody>
</table>
Concentrations

PHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F342</td>
<td>Classical Physics II: Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F400</td>
<td>Capstone Project 1</td>
<td>0</td>
</tr>
</tbody>
</table>

Concentrations

Complete one from the following concentrations: 31-40

- Physics
- Applied Physics
- Atmospheric Physics
- Computational Physics
- Technical Management

1 Satisfy the capstone project requirement by passing PHYS F400, Capstone Project (0 credits).
The capstone project can be done either as individual undergraduate research with a faculty member (by taking PHYS F488 - 2 credits) or as an independent study with a faculty member within any F300 or F400-level physics course (by taking PHYS F497 - 2 credits), or as participation in the international University Physics Competition. Credits required to fulfill the capstone experience do not count toward credits required to complete the concentration.

APPLIED PHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F472A</td>
<td>Advanced Topics in Physics II: Planetary Atmospheres</td>
<td></td>
</tr>
<tr>
<td>PHYS F472B</td>
<td>Advanced Topics in Physics II: Fluid Dynamics</td>
<td></td>
</tr>
<tr>
<td>PHYS F472C</td>
<td>Advanced Topics in Physics II: Plasma Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS F472D</td>
<td>Advanced Topics in Physics II: Hamiltonian Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS F472E</td>
<td>Advanced Topics in Physics II: Physics of Glaciers</td>
<td></td>
</tr>
<tr>
<td>PHYS F472F</td>
<td>Advanced Topics in Physics II: Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>PHYS F472G</td>
<td>Advanced Topics in Physics II: Solar Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS F472H</td>
<td>Advanced Topics in Physics II: Advanced Laboratory</td>
<td></td>
</tr>
<tr>
<td>PHYS F472I</td>
<td>Advanced Topics in Physics II: Spectroscopy</td>
<td></td>
</tr>
<tr>
<td>PHYS F472J</td>
<td>Advanced Topics in Physics II: Cosmology</td>
<td></td>
</tr>
<tr>
<td>PHYS F472K</td>
<td>Advanced Topics in Physics II: Quantum Computation</td>
<td></td>
</tr>
<tr>
<td>PHYS F472L</td>
<td>Advanced Topics in Physics II: Covariant Kinematics/Dynamics</td>
<td></td>
</tr>
<tr>
<td>PHYS F472Z</td>
<td>Advanced Topics in Physics II: Current Topics in Physics</td>
<td></td>
</tr>
</tbody>
</table>

Recommended courses include MATH F314, MATH F421 and MATH F422.

ATMOSPHERIC PHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F401</td>
<td>Introduction to Atmospheric Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ATM F413</td>
<td>Atmospheric Radiation</td>
<td>3</td>
</tr>
<tr>
<td>ATM F445</td>
<td>Atmospheric Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

Other relevant upper-division courses. 2

Recommended courses include MATH F314, MATH F421 and MATH F422.
The credits must be in a chosen subject area and approved before the beginning of the student's final semester by the head of the Physics Department.

### COMPUTATIONAL PHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH electives at the F300 level or above</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Physics credits at the F300 level or above</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>CS F201</td>
<td>Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>CS F202</td>
<td>Computer Science II</td>
<td>3</td>
</tr>
<tr>
<td>MATH F310</td>
<td>Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Other relevant upper-division courses.</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

1. Recommended courses include MATH F314, MATH F421 and MATH F422.
2. The credits must be in a chosen subject area and approved before the beginning of the student's final semester by the head of the Physics Department.

### TECHNICAL MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH electives at the F300 level or above</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Physics credits at the F300 level or above</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F262</td>
<td>Principles of Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BA F325</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F330</td>
<td>The Legal Environment of Business</td>
<td>4</td>
</tr>
<tr>
<td>BA F343</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA F360</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Recommended courses include MATH F314, MATH F421 and MATH F422.
2. Students must take ACCT F261X, MATH F253X and PHYS F220 before taking these courses; or have permission of the MBA director. The School of Management agrees that such students will be allowed to register for these courses.
3. Students can be required to earn a B grade or higher if applying for the MBA program.

Note: Other courses suggested to fulfill minimum credit requirements: ES F201 and ES F307.

Note: Must exclude PHYS F103X and PHYS F104X from core curriculum natural science requirement.

### Requirements for physics teachers (grades 7-12)

Students must earn a C- grade or better in each course.

### Political Science

College of Liberal Arts
Department of Political Science
907-474-7609
http://www.uaf.edu/polisci/

### B.A. Degree

Minimum Requirements for Degree: 120 credits

The Department of Political Science offers a B.A. degree as well as minors in law and society, environmental politics and political science. Graduate-level courses in political science are available through the northern studies concentration in environmental politics and policy. Doctoral study in political science is available through the interdisciplinary studies program of the Graduate School.

The study of political science provides education for citizenship in a changing nation and world. Political science provides a sound preparation in the social sciences. As the study of power, political science explains who gets what, when, where and how. It examines the struggles over claims to authority that shape our lives and our world. As the study of values, it examines why citizens obey or rebel, the nature of...
just societies, and the ways individuals reconcile personal liberty with political authority. As the science of political behavior, it analyzes the actions of interest groups, political parties and public officials. Politics is an omnipresent force, not only in governments but in families, social organizations, schools and decision-making bodies of all types — from student councils to international institutions. A solid understanding of local, national and international politics will benefit any student throughout his or her career.

Courses are offered in the traditional fields of international and comparative politics, American government, political theory, public policy and public law. The department also offers classes in environmental policy and politics, Native American studies, the politics of science and women’s studies. In addition to course offerings and faculty expertise, the department presents real world opportunities for political science students to apply their learning. Those include numerous internship and scholarship opportunities in Alaska and the rest of the United States. Students can participate in model United Nations simulations, join the political science honor society Pi Sigma Alpha, aid faculty as research assistants and take part in numerous other department projects such as bringing speakers to campus or hosting roundtables on important issues. Graduate students may also serve as teaching assistants.

The political science B.A. has led students to graduate work in the social sciences; employment in the media and public relations; teaching at high school and university levels; and careers in business corporations and non-profits at the state and national levels. Political science provides a broad understanding of the formation, application and change of the law, as well as research techniques and standards of argumentation essential to legal practice. The study of political science also prepares students for work in various fields of government. Alaska offers job prospects for political science graduates as managers in state and local governments and as legislators and legislative staff members. Graduates are also qualified to work outside of Alaska in numerous public and private sector jobs.

**Degree**
- B.A., Political Science (p. 243)

**Minor**
- Minor, Political Science (p. 243)

### B.A., Political Science

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
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<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>General Education Requirements</strong></td>
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<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
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<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIST F100X Modern World History</td>
<td></td>
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<tr>
<td></td>
<td>PS F100X Political Economy</td>
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</tr>
<tr>
<td></td>
<td><strong>B.A. Degree Requirements</strong></td>
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</tr>
<tr>
<td></td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the B.A. degree requirements, complete:</td>
<td></td>
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<tr>
<td></td>
<td>PS F300X Ethics and Society</td>
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### Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>PS F222</td>
<td>Political Science Research Methods</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete one of the following:</td>
<td></td>
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<tr>
<td></td>
<td>PS F475 Internship in Public Affairs</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PS F499 Senior Thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>The Alaska Universities Legislative Internship Program</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other approved internship earning at least 3 transferable upper-division credits</td>
<td></td>
</tr>
</tbody>
</table>

### Political Science

Complete 24 credits from the following (at least one course from four of the following sub-disciplinary groups):

#### American Government and Politics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F212</td>
<td>Introduction to Public Administration</td>
<td></td>
</tr>
<tr>
<td>PS F301</td>
<td>American Presidency</td>
<td></td>
</tr>
<tr>
<td>PS F302</td>
<td>Congress and Public Policy</td>
<td></td>
</tr>
<tr>
<td>PS F401</td>
<td>Political Behavior</td>
<td></td>
</tr>
<tr>
<td>PS F403</td>
<td>Public Policy</td>
<td></td>
</tr>
<tr>
<td>PS F462</td>
<td>Alaska Government and Politics</td>
<td></td>
</tr>
</tbody>
</table>

#### Public Law

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>PS F303</td>
<td>Politics and the Judicial Process</td>
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<tr>
<td>PS F435</td>
<td>Constitutional Law I: Federalism</td>
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<tr>
<td>PS F436</td>
<td>Constitutional Law II: Civil Rights and Liberties</td>
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#### Comparative Politics

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PS F201X</td>
<td>Comparative Politics</td>
<td></td>
</tr>
<tr>
<td>PS F202</td>
<td>Democracy and Global Society</td>
<td></td>
</tr>
<tr>
<td>PS F460</td>
<td>Government and Politics of Canada</td>
<td></td>
</tr>
<tr>
<td>PS F464</td>
<td>East Asian Governments and Politics</td>
<td></td>
</tr>
<tr>
<td>PS/HIST F467</td>
<td>Political Development in Latin America and the Caribbean</td>
<td></td>
</tr>
<tr>
<td>PS F468</td>
<td>Government and Politics of Russia</td>
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</tbody>
</table>

#### International Politics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F221X</td>
<td>International Politics</td>
<td></td>
</tr>
<tr>
<td>PS F322</td>
<td>International Law and Organization</td>
<td></td>
</tr>
<tr>
<td>PS F323</td>
<td>International Political Economy</td>
<td></td>
</tr>
<tr>
<td>PS F437</td>
<td>United States Foreign Policy</td>
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</tbody>
</table>

#### Political Theory

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PS F314</td>
<td>Political Ideologies</td>
<td></td>
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<tr>
<td>PS F315</td>
<td>American Political Thought</td>
<td></td>
</tr>
<tr>
<td>PS/WGS F340</td>
<td>Gender, Sex and Politics</td>
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</tr>
<tr>
<td>PS/PHIL F411</td>
<td>Classical Political Theory</td>
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</tr>
<tr>
<td>PS/PHIL F412</td>
<td>Modern Political Theory</td>
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</tbody>
</table>

### Minor, Political Science

**Minimum Requirements for Minor: 15 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F101X</td>
<td>Introduction to American Government and Politics</td>
<td>3</td>
</tr>
</tbody>
</table>
Complete at least four political science courses at the F200, F300 or F400 level

Psychology
College of Liberal Arts
Department of Psychology
907-474-7007
http://www.uaf.edu/psych/

B.A., B.S. Degrees
Minimum Requirements for Degrees: 120 credits

The Department of Psychology offers B.A. and B.S. degrees in psychology. The department’s focus is to provide breadth and depth in the science and profession of psychology with a commitment to honoring diversity and promoting human welfare. The curriculum develops cross-cultural knowledge, critical thinking, imagination, creativity, ethical principles and concern for social justice, as well as respect for and knowledge of diverse points of view that include feminist, multicultural, indigenous, and gay and lesbian perspectives.

In addition to active engagement in the classroom, students can participate in research and community service. Programs in psychology facilitate an understanding of the human experience as an interaction of biological, psychological, social and cultural processes.

Graduates of the undergraduate program in psychology have been successful in gaining entrance to graduate school in a variety of fields including psychology, medicine, business and law. Graduation with an undergraduate psychology degree has allowed students to become employed in a variety of entry-level human services and business positions.

Degree
• B.A., Psychology (p. 244)
• B.S., Psychology (p. 244)

Minor
• Minor, Psychology (p. 245)

B.A., Psychology
Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F275</td>
<td>Introduction to Social Science Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSY F301</td>
<td>Culture and Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY F475</td>
<td>Research Design and Analysis in Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or PSY F485</td>
<td>Senior Seminar</td>
<td></td>
</tr>
<tr>
<td>or PSY F499</td>
<td>Thesis</td>
<td></td>
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</table>

Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F240</td>
<td>Psychology of Development</td>
</tr>
<tr>
<td>PSY F304</td>
<td>Personality</td>
</tr>
<tr>
<td>PSY/SOC F330</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSY/SOC F333/ WGS F332</td>
<td>Human Sexualities Across Cultures</td>
</tr>
<tr>
<td>PSY F335</td>
<td>Brain and Behavior</td>
</tr>
<tr>
<td>PSY F345</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSY/WGS F360</td>
<td>Psychology of Women Across Cultures</td>
</tr>
<tr>
<td>PSY F370</td>
<td>Drugs and Behavior</td>
</tr>
<tr>
<td>PSY F440</td>
<td>Learning and Cognition</td>
</tr>
<tr>
<td>PSY F470</td>
<td>Sensation and Perception</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

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<tr>
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</thead>
<tbody>
<tr>
<td>PSY F337</td>
<td>Sport Psychology</td>
</tr>
<tr>
<td>PSY F390</td>
<td>Industrial and Organizational Psychology</td>
</tr>
<tr>
<td>PSY F445</td>
<td>Community Psychology</td>
</tr>
<tr>
<td>PSY F455</td>
<td>Clinical Psychology</td>
</tr>
<tr>
<td>PSY F469</td>
<td>Health Psychology</td>
</tr>
<tr>
<td>PSY F475</td>
<td>Research Design and Analysis in Psychology</td>
</tr>
<tr>
<td>PSY/SOC F480</td>
<td>Qualitative Social Science Research</td>
</tr>
<tr>
<td>PSY F485</td>
<td>Senior Seminar</td>
</tr>
<tr>
<td>PSY F488</td>
<td>Practicum in Psychology</td>
</tr>
<tr>
<td>PSY F498</td>
<td>Research</td>
</tr>
<tr>
<td>PSY F499</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

Complete 9 additional psychology credits selected from the catalog or from electives approved by psychology faculty

PSY F485 fulfills the baccalaureate capstone requirement.

Note: No course may count in more than one area (e.g. PSY F475 may NOT count toward both foundation and applied courses).

Note: Students may not count more than 6 credits of any combination of PSY F497 and PSY F498 toward the major.

Note: Students may apply an unlimited number of PSY F392/PSY F492 and PSY F393/PSY F493 credits toward the degree provided the topics are different for each course.

Note: Students should work closely with an advisor to ensure completion of 39 upper-division credits for graduation.

B.S., Psychology
Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
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<tr>
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<tr>
<td>PSY F275</td>
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<td>Culture and Psychology</td>
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<td>PSY F475</td>
<td>Research Design and Analysis in Psychology</td>
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<tr>
<td>or PSY F485</td>
<td>Senior Seminar</td>
</tr>
<tr>
<td>or PSY F499</td>
<td>Thesis</td>
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Complete 6 credits from the following:

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<tr>
<td>PSY F345</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSY/WGS F360</td>
<td>Psychology of Women Across Cultures</td>
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<td>PSY F370</td>
<td>Drugs and Behavior</td>
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<tr>
<td>PSY F440</td>
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</tr>
<tr>
<td>PSY F470</td>
<td>Sensation and Perception</td>
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Complete 6 credits from the following:

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<tr>
<td>PSY F455</td>
<td>Clinical Psychology</td>
</tr>
<tr>
<td>PSY F469</td>
<td>Health Psychology</td>
</tr>
<tr>
<td>PSY F475</td>
<td>Research Design and Analysis in Psychology</td>
</tr>
<tr>
<td>PSY/SOC F480</td>
<td>Qualitative Social Science Research</td>
</tr>
<tr>
<td>PSY F485</td>
<td>Senior Seminar</td>
</tr>
<tr>
<td>PSY F488</td>
<td>Practicum in Psychology</td>
</tr>
<tr>
<td>PSY F498</td>
<td>Research</td>
</tr>
<tr>
<td>PSY F499</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

Complete 9 additional psychology credits selected from the catalog or from electives approved by psychology faculty

Note: No course may count in more than one area (e.g. PSY F475 may NOT count toward both foundation and applied courses).

Note: Students may not count more than 6 credits of any combination of PSY F497 and PSY F498 toward the major.

Note: Students may apply an unlimited number of PSY F392/PSY F492 and PSY F393/PSY F493 credits toward the degree provided the topics are different for each course.

Note: Students should work closely with an advisor to ensure completion of 39 upper-division credits for graduation.
Complete the general university requirements. (p. 142)

**General Education Requirements**
Complete the general education requirements. (p. 145)

**B.A. or B.S. Degree Requirements**
Complete the B.A. degree requirements. (p. 150)
Complete the B.S. degree requirements. (p. 154)

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY/SOC F250</td>
<td>Introductory Statistics for Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PSY F275</td>
<td>Introduction to Social Science Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSY F301</td>
<td>Culture and Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY F475</td>
<td>Research Design and Analysis in Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or PSY F485 Senior Seminar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or PSY F499 Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Complete 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F240</td>
<td>Psychology of Development</td>
<td></td>
</tr>
<tr>
<td>PSY F304</td>
<td>Personality</td>
<td></td>
</tr>
<tr>
<td>PSY/SOC F330</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY/SOC F333/ WGS F332</td>
<td>Human Sexualities Across Cultures</td>
<td></td>
</tr>
<tr>
<td>PSY F335</td>
<td>Brain and Behavior</td>
<td></td>
</tr>
<tr>
<td>PSY F345</td>
<td>Abnormal Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY/WGS F360</td>
<td>Psychology of Women Across Cultures</td>
<td></td>
</tr>
<tr>
<td>PSY F370</td>
<td>Drugs and Behavior</td>
<td></td>
</tr>
<tr>
<td>PSY F440</td>
<td>Learning and Cognition</td>
<td></td>
</tr>
<tr>
<td>PSY F470</td>
<td>Sensation and Perception</td>
<td></td>
</tr>
</tbody>
</table>

Complete 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F337</td>
<td>Sport Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY F390</td>
<td>Industrial and Organizational Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY F445</td>
<td>Community Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY F455</td>
<td>Clinical Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY F469</td>
<td>Health Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY F475</td>
<td>Research Design and Analysis in Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY/SOC F480</td>
<td>Qualitative Social Science Research</td>
<td></td>
</tr>
<tr>
<td>PSY F485</td>
<td>Senior Seminar</td>
<td></td>
</tr>
<tr>
<td>PSY F488</td>
<td>Practicum in Psychology</td>
<td></td>
</tr>
<tr>
<td>PSY F498</td>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>PSY F499</td>
<td>Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Complete 9 additional psychology credits selected from the catalog or from electives approved by psychology faculty 9

---

**Note:** Students may apply an unlimited number of PSY F392/PSY F492 and PSY F393/PSY F493 credits toward the degree provided the topics are different for each course.

**Note:** Students should work closely with an advisor to ensure completion of 39 upper-division credits for graduation.

### Minor, Psychology

**Minimum Requirements for Minor: 15 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY electives</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

### Rural Development

**College of Rural and Community Development**
Department of Alaska Native Studies and Rural Development
907-474-6528 Toll-free 1-866-478-2721
http://www.uaf.edu/dansrd/

**B.A. Degree**

Minimum Requirements for Degree: 120 credits

Rural development is an interdisciplinary field that teaches the history, theory and skills needed for human, social and economic development in rural communities. Rural development degree programs are designed to educate a new generation of community leaders for rural Alaska. The B.A. degree can be earned either on the Fairbanks campus or through distance delivery. Special application requirements and deadlines apply for distance B.A. degree programs. Students applying for acceptance into the Rural Development program need to complete a department-specific written questionnaire in addition to general university admission requirements. Findings from this questionnaire will be used to support the department advising process and assist students in connecting with faculty and mentors. The questionnaire is found on the DANSRD website under “How to Apply.”

Students in the rural development program gain a broad understanding of Alaska’s relationship to the global economy and an appreciation for sustainable development strategies. Students also learn specific tools essential for community leadership, including business plan and grant proposal writing, community visioning and planning processes, community-based research techniques, computer business applications, project management, and evaluation techniques. Graduates typically take positions with tribal and municipal governments, fisheries, tourism and other private businesses, Native corporations, regional health corporations or nonprofits, and state/federal agencies.

Within the B.A. degree program, students will select and develop a concentration in one of five areas:

- The human and social development concentration is for students interested in social services, social justice, community wellness and cultural development. Graduates may find employment with tribal governments, health consortia, clinics and schools.
- The tribal and municipal governance concentration is for students interested in tribal governance and rural municipal and borough government (home rule). Students develop an understanding of the history and constitutional basis for tribal governance, various home rule governance structures, basics of federal Indian law, principles
and practices of self-determination, and the mandates of the Alaska Native Claims Settlement Act. They develop skills in planning, budgeting and human resources management. Students can pursue a special interest, such as management of health programs, tribal governance programs or Alaska Native corporations, and tailor the concentration to these specifications through choice of related courses and electives. Graduates may find employment with tribal and municipal governments and organizations, ANCSA corporations, and state and federal agencies.

- The integrated resource management concentration is designed for students interested in land use, subsistence, cultural resources and co-management. Students learn about traditional ecological knowledge, principles of natural resources management and policy, adaptive management, conservation and ecotourism, and skills for effective public/private/tribal collaboration in resource management. Management strategies for addressing climate change are explored. Graduates may find employment with ANCSA corporations, regional and tribal entities, or state and federal agencies.

- The entrepreneurship and economic development concentration is for students interested in creating sustainable economies in rural and indigenous communities, with a focus on small business development. Students learn to develop business and marketing plans, economic development planning, and basic principles of financial and human resources management for rural enterprises. Graduates find employment in ANCSA corporations, regional development organizations, economic development agencies and as local entrepreneurs.

- The multidisciplinary concentration is intended for students who wish to combine two or more rural development concentrations or combine a rural development concentration with another discipline. Students will work closely with their advisor to select the appropriate courses for the concentration.

Degree

- B.A., Rural Development (p. 246)

Minor

- Minor, Rural Development (p. 247)

B.A., Rural Development

Concentrations: Human and Social Development; Tribal and Municipal Governance; Integrated Resource Management; Entrepreneurship and Economic Development; Multidisciplinary

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.A. Degree Requirements 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.A. degree requirements. (p. 150)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Including 39 upper-division credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td>RD F225</td>
<td>Communicating for Rural Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentrations

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>RD F300</td>
<td>Rural Development in a Global Perspective</td>
<td>3</td>
</tr>
<tr>
<td>RD F325</td>
<td>Rural Development Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>RD F340</td>
<td>Community Research Toolbox</td>
<td>3</td>
</tr>
<tr>
<td>RD F351</td>
<td>Strategic Planning and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>RD F352</td>
<td>Rural Business Planning and Proposal Development</td>
<td>3</td>
</tr>
<tr>
<td>RD F450</td>
<td>Managing Rural Projects and Programs</td>
<td>3</td>
</tr>
<tr>
<td>RD F474</td>
<td>Applied Community Research</td>
<td>3</td>
</tr>
<tr>
<td>RD F475</td>
<td>Rural Development Senior Project 2</td>
<td>3</td>
</tr>
<tr>
<td>RD elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>RD, ANS, TM or ED electives</td>
<td></td>
<td>6</td>
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</table>

Concentration Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANS/RD F315</td>
<td>Tribal People and Development</td>
<td>3</td>
</tr>
<tr>
<td>RD F465</td>
<td>Community Healing and Wellness</td>
<td>3</td>
</tr>
<tr>
<td>RD F468</td>
<td>Human Development and Social Justice</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete an additional 6 credits from rural development, Alaska Native studies, ethnobotany, human services, psychology, rural development, rural human services, social work and/or tribal management. 1

1 Recommended subject areas. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.

TRIBAL AND MUNICIPAL GOVERNANCE

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F325</td>
<td>Native Self-government</td>
<td>3</td>
</tr>
<tr>
<td>RD F427</td>
<td>Tribal Contracting and Compacting</td>
<td>3</td>
</tr>
<tr>
<td>ANS/RD F435</td>
<td>Participatory Policymaking in Tribal, State and Federal Government</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete an additional 6 credits from rural development, Alaska Native studies, applied business, business administration and or tribal management. 1
Recommended subject areas. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.

INTEGRATED RESOURCE MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration Requirements</td>
<td></td>
</tr>
<tr>
<td>RD F255</td>
<td>Rural Alaska Land Issues</td>
<td>3</td>
</tr>
<tr>
<td>RD F265</td>
<td>Perspectives on Subsistence in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>RD F425</td>
<td>Cultural Resource Issues</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete an additional 6 credits from rural development, Alaska Native studies, environmental studies, ethnobotany, fisheries, high latitude range management, natural resource management, rural development and/or tribal management.</td>
<td></td>
</tr>
</tbody>
</table>

Recommended subject areas. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.

ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration Requirements</td>
<td></td>
</tr>
<tr>
<td>RD F430</td>
<td>Indigenous Economic Development and Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>RD F470</td>
<td>The Alaska Native Claims Settlement Act: Pre-1971 to Present</td>
<td>3</td>
</tr>
<tr>
<td>RD F471</td>
<td>Corporate Social Responsibility and Accountability in Rural and Indigenous Contexts</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete an additional 6 credits from rural development, Alaska Native studies, applied business, business administration, construction trades technology, economics and/or tribal management.</td>
<td></td>
</tr>
</tbody>
</table>

Recommended subject areas. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.

MULTIDISCIPLINARY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete 15 credits from two or more existing concentrations. Courses must include at least 9 credits from the required course lists of the existing concentrations as approved by department advisor.</td>
<td></td>
</tr>
</tbody>
</table>

Minor, Rural Development

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any three-credit RD course at the 300 level or above</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RD electives at the F200 level or above</td>
<td>12</td>
</tr>
</tbody>
</table>

B.A., Social Work

Minimum Requirements for Degree: 120 credits

We educate generalist social work practitioners to promote the health and well-being of individuals, families and communities, emphasizing the diversity and uniqueness of rural Alaska.

We create a community of critical thinkers dedicated to becoming competent, culturally sensitive professionals engaged in lifelong learning. We prepare students for generalist social work practice with individuals, families, groups, organizations and communities; to integrate the values and ethics of the social work profession into generalist practice; to apply critical thinking to inform and communicate professional judgments; to engage diversity in generalist practice to advance human rights and advocate for social and economic justice; and to understand bio-psycho-social, spiritual, and cultural functioning and apply it to all client systems.

Graduates in social work qualify for beginning practice positions in child welfare, mental health, services for the aged, family agencies, youth programs, health services, Native corporations and other social agencies. Social work applies knowledge in the behavioral sciences to deal with the emotional and social problems of individuals, families and communities.

We prepare students with the skills and knowledge necessary to begin social work practice in rural and Alaska Native communities.

Students learn to engage people on a personal level and are placed in a social service agency as part of their course work during the senior year. Students must apply to participate in a senior field placement and are required to complete a minimum of 400 hours over the course of two semesters in a social service agency practicing the skills learned in the program.

The UAF baccalaureate social work program is accredited by the Council on Social Work Education. This degree program is delivered collaboratively within the UA system.

Degree

• B.A., Social Work (p. 247)

Minor

• Minor, Social Work (p. 248)

B.A., Social Work

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 142)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td>SOC F101X</td>
<td>Introduction to Sociology</td>
<td></td>
</tr>
<tr>
<td>or ANTH F100X</td>
<td>Individual, Society and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Social Work

College of Liberal Arts
Department of Social Work
907-474-7240

http://www.uaf.edu/socwork/
Complete one of the following: 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F100X</td>
<td>Human Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL F103X</td>
<td>Biology and Society</td>
<td></td>
</tr>
<tr>
<td>BIOL F111X</td>
<td>Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F112X</td>
<td>Human Anatomy and Physiology II</td>
<td></td>
</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td></td>
</tr>
</tbody>
</table>

**B.A. Degree Requirements**

Complete the B.A. degree requirements. (p. 150)

As part of the B.A. degree requirements, complete:

- ANS F242X
- ANTH F242
- PSY F101X

**Program Requirements**

- SWK F103X Introduction to Social Work 3
- SWK F220 Ethics, Values and Social Work Practice 3
- SWK F305 Social Welfare History 3
- SWK F306 Social Welfare: Policies and Issues 3
- SWK F320 Rural Social Work 3
- SWK F341 Human Behavior in the Social Environment I 3
- SWK F342 Human Behavior in the Social Environment II 3
- SWK F375 Research Methods in Social Work 3
- SWK F460 Social Work Practice I 3
- SWK F461 Practicum in Social Work I 3-6
- SWK F463 Social Work Practice II 3
- SWK F464 Practicum in Social Work II 3-6
- SWK F466 Practicum in Social Work III 3-6

**Special Problems Areas**

Complete two of the following: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS F205</td>
<td>Basic Principles of Group Counseling</td>
<td></td>
</tr>
<tr>
<td>HUMS F305</td>
<td>Substance Abuse Counseling</td>
<td></td>
</tr>
<tr>
<td>SWK F310</td>
<td>Fetal Alcohol Spectrum Disorders</td>
<td></td>
</tr>
<tr>
<td>SWK F330</td>
<td>Seminar in International Social Work</td>
<td></td>
</tr>
<tr>
<td>SWK F360</td>
<td>Child Abuse and Neglect</td>
<td></td>
</tr>
<tr>
<td>SWK F370</td>
<td>Services and Support for an Aging Society</td>
<td></td>
</tr>
<tr>
<td>SWK F440</td>
<td>Social Work Practice with Military Families</td>
<td></td>
</tr>
<tr>
<td>SWK F470</td>
<td>Substance Abuse Theories and Treatment</td>
<td></td>
</tr>
<tr>
<td>SWK F484</td>
<td>Seminar in Social Work Practice Areas</td>
<td></td>
</tr>
</tbody>
</table>

1 Students must complete a total of 12 credits of practicum, and students must take SWK F461 and SWK F464 for at least 6 of these credits. SWK F466 is an option for students who have completed SWK F461 and SWK F464 for less than 12 credits.

2 Fulfills the baccalaureate capstone requirement.

**Minimum Requirements for Minor: 15 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWK F103X</td>
<td>Introduction to Social Work</td>
<td>3</td>
</tr>
<tr>
<td>SWK F220</td>
<td>Ethics, Values and Social Work Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete three SWK designated courses, excluding SWK F460, SWK F461, SWK F463 and SWK F464 9

**Sociology**

College of Liberal Arts
Department of Sociology
907-474-5494
http://www.uaf.edu/sociology/

**Minor Only**

Minimum Requirements for Degrees: 18 credits

Sociology is a scientific discipline that teaches us about ourselves and the groups of which we are a part. The sociological perspective equips the graduate with critical thinking and analytical problem-solving skills necessary for a variety of careers. A person with a sociology undergraduate degree can apply sociology in any work environment, including human services, government, business, community activism and public health agencies. The sociology department also prepares individuals to pursue graduate studies in sociology or professional programs for careers in law, medicine, business, education and social policy.

**Minor, Sociology**

Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC F101X</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>or SOC F201X</td>
<td>Social Problems and Solutions</td>
<td></td>
</tr>
</tbody>
</table>

15 credits of SOC electives, 6 of which must be upper-division 15

**Sport and Recreation Business**

School of Management
907-474-7461
http://www.uaf.edu/som/

**B.S.R.B. Degree**

Minimum Requirements for Degree: 120 credits

The sport and recreation business program prepares students for careers on the business side of sport, recreation and/or tourism. The program emphasizes critical business areas including accounting, marketing, management, economics and finance applied to the sport, recreation and tourism industries. The combination of business, leadership and hands-on education prepare our students to make an immediate impact within an organization.

The Bachelor of Sport and Recreation Business degree (B.S.R.B.) requires a minimum of 120 credit hours. The B.S.R.B. provides academic
preparation and sought-after, critical education necessary for entry-level careers in the sport and recreation industries. This degree also serves as a capstone program for students with relevant two-year associate degrees in sport and recreation management who wish to continue an education into a four-year business program, such as the Bachelor of Sport and Recreation Business degree at SOM.

**Degree**

• B.S.R.B., Sport and Recreation Business (p. 249)

**B.S.R.B., Sport and Recreation Business**

**Concentrations:** Sport Management and Recreation Management

**Minimum Requirements for Degree: 120 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>General Education Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
<td></td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Essential Precalculus with Applications</td>
<td></td>
</tr>
<tr>
<td>SPRT F281X</td>
<td>Introduction to Sport Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>B.S.R.B. Degree Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the B.S.R.B. degree requirements. (p. 157)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Program Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F343</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>SPRT F280</td>
<td>Sport Leadership</td>
<td>3</td>
</tr>
<tr>
<td>SPRT F482</td>
<td>Sport Marketing</td>
<td>3</td>
</tr>
<tr>
<td>SPRT F483</td>
<td>Sport Sales</td>
<td>3</td>
</tr>
<tr>
<td>SPRT F484</td>
<td>Legal Aspects of Sport and Recreation Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Additional 12 credits of ACCT, BA, ECON, HSEM, SPRT, or additional concentration courses as approved by advisor</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Choose one or more from the following concentrations:</td>
<td>9</td>
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<tr>
<td></td>
<td>Sport Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recreation Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Electives</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electives may be taken to meet 120 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>SPORT MANAGEMENT</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Selective Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 9 credits from the following:</td>
<td></td>
</tr>
<tr>
<td>BA F436</td>
<td>Consumer Behavior</td>
<td>9</td>
</tr>
<tr>
<td>BA F443</td>
<td>Social Media Marketing</td>
<td></td>
</tr>
<tr>
<td>HSEM F301</td>
<td>Principles of Emergency Management and Homeland Security</td>
<td></td>
</tr>
</tbody>
</table>

**Statistics**

College of Natural Science and Mathematics
Department of Mathematics and Statistics
907-474-7332
http://www.uaf.edu/dms/

**Minor Only**

Statistics is a collection of methods and theories for making decisions or estimating unknown quantities from incomplete information. Statistical techniques are useful, for example, in estimating plant, animal and mineral abundances; forecasting social, political and economic trends; planning field plot experiments in agriculture; performing clinical trials in medical research; and maintaining quality control in industry. Employment opportunities are excellent for statisticians in many of these areas of application.

**Minor**

• Minor, Statistics (p. 249)

**Minor, Statistics**

**Minimum Requirements for Minor: 16 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Complete the following:</strong></td>
<td></td>
</tr>
<tr>
<td>MATH F371</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>MATH F408</td>
<td>Mathematical Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT F401</td>
<td>Regression and Analysis of Variance</td>
<td>4</td>
</tr>
<tr>
<td>MATH, STAT or STAT related course work ²</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

1. MATH F371 requires MATH F251X, MATH F252X and MATH F253X as prerequisites.

2. e.g., BA F360, GEOS F430, ANTH F424, MATH F460, etc.
Note: Courses completed to satisfy this minor can be used to simultaneously satisfy other major or general distribution requirements.

Note: Fisheries majors selecting the research option for their major need only to complete MATH F371 and MATH F408 in addition to their fisheries requirements in order to obtain a minor in statistics.

Teaching English to Speakers of Other Languages

College of Liberal Arts
Department of Linguistics
907-474-6585
http://www.uaf.edu/linguist/

Minor Only

The minor in teaching English to speakers of other languages will provide students with a theoretical and practical foundation for the teaching of English as a second language in the United States or as a foreign language in other countries. The curriculum will benefit students in foreign languages, linguistics, English, education and other fields of study who are interested in short- or long-term employment in the TESOL field.

Minor

• Minor, Teaching English to Speakers of Other Languages (p. 250)

Minor, Teaching English to Speakers of Other Languages

Minimum Requirements for Minor: 16 credits

Students must earn C- grade or better in each course except LING F200, which is graded on a pass/fail basis.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING F101X</td>
<td>Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td>LING F200</td>
<td>The Field of Teaching English to Speakers of Other Languages</td>
<td>1</td>
</tr>
<tr>
<td>LING F302</td>
<td>Second Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>LING F315</td>
<td>English Language for Second Language Teaching</td>
<td>3</td>
</tr>
<tr>
<td>LING F410</td>
<td>Theory and Methods of Second Language Teaching</td>
<td>3</td>
</tr>
<tr>
<td>LING F451</td>
<td>English Second Language Teaching Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: F400-level courses require junior standing or instructor permission.

Tribal Management

College of Rural and Community Development
907-474-7143
http://tribal.uaf.edu/

Minor Only

The minor in tribal management provides students with the skills to work within tribal and local governments and other organizations in rural Alaska. The curriculum gives students a foundation to apply the knowledge gained in their majors to rural and tribal management contexts.

Minor

• Minor, Tribal (p. 250) Management (p. 250)

Minor, Tribal Management

Minimum Requirements for Minor: 15 credits

Students must earn C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>TM F101</td>
<td>Introduction to Tribal Government in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>TM F105</td>
<td>Introduction to Managing Tribal Governments</td>
<td>3</td>
</tr>
<tr>
<td>TM F201</td>
<td>Tribal Government in Alaska II</td>
<td>3</td>
</tr>
<tr>
<td>TM F205</td>
<td>Managing Tribal Governments II</td>
<td>3</td>
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<tr>
<td>Tribal management electives</td>
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</table>

Wildlife Biology and Conservation

College of Natural Science and Mathematics
Department of Biology and Wildlife
907-474-7671
http://www.bw.uaf.edu

B.S. Degree

Minimum Requirements for Degree: 120 credits

The undergraduate wildlife program provides basic education and training. This degree is designed for students whose objective is to accomplish the research needed to provide additional information on wild animal populations, their habitat and habitat-animal relationships. This degree is also for students whose primary interests involve interpreting, applying or disseminating research findings, rather than their acquisition. A wildlife B.S. degree is appropriate for students contemplating careers in wildlife agency administration, in developing and implementing wildlife management plans and in public information and education. The curriculum provides a solid foundation for graduate study and meets requirement for certification by The Wildlife Society.

The geographic location of the university is particularly advantageous for the study of wildlife biology. Spruce forest, aspen-birch forest, alpine tundra, bogs and several types of aquatic habitats are within easy reach. Studies can be made in many other habitats ranging from the dense forests of southeastern Alaska to Arctic tundra.

Adequate study collections of plants and animals are available, and a 2,000-acre study area is near the campus. Wildlife biology students have ample opportunity for close association with the personnel of the Alaska Cooperative Fish and Wildlife Research Unit, Institute of Arctic Biology and several local offices of the federal and state conservation agencies. These agencies often provide support for graduate student projects, and program faculty usually hire a number of students for summer fieldwork. Thus, an unusually good opportunity is available for students to gain experience and to make job connections.
Degree
- B.S., Wildlife Biology and Conservation (p. 251)

Minor
- Minor, Wildlife Biology and Conservation (p. 251)

B.S., Wildlife Biology and Conservation

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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<tr>
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<td>Complete the general university requirements. (p. 142)</td>
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<tr>
<td></td>
<td>General Education Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the general education requirements. (p. 145)</td>
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<tr>
<td></td>
<td>As part of the general education requirements, complete:</td>
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</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td></td>
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<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
<td></td>
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<tr>
<td>COJO F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
<td></td>
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<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>or MATH F230X</td>
<td>Essential Calculus with Applications</td>
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<td></td>
<td>B.S. Degree Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the B.S. degree requirements. (p. 154)</td>
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<td>As part of the B.S. degree requirements, complete:</td>
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</tr>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Statistics</td>
<td></td>
</tr>
<tr>
<td>or STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
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<tr>
<td>BIOL F239</td>
<td>Introduction to Plant Biology</td>
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<tr>
<td>BIOL F260</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
<td>4</td>
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<tr>
<td>BIOL F331</td>
<td>Systematic Botany</td>
<td>3</td>
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<tr>
<td>or BIOL F488</td>
<td>Arctic Vegetation Ecology: Geobotany</td>
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<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
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<tr>
<td>BIOL F471</td>
<td>Population Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F314</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL F414</td>
<td>Research Writing</td>
<td></td>
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<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>or GEOS F101X</td>
<td>The Dynamic Earth</td>
<td></td>
</tr>
<tr>
<td>or NRM F380</td>
<td>Soils and the Environment</td>
<td></td>
</tr>
<tr>
<td>STAT F401</td>
<td>Regression and Analysis of Variance</td>
<td>4</td>
</tr>
<tr>
<td>WLF F101</td>
<td>Survey of Wildlife Science</td>
<td>2</td>
</tr>
<tr>
<td>WLF F301</td>
<td>Design of Wildlife Studies</td>
<td>3</td>
</tr>
<tr>
<td>WLF F322</td>
<td>Principles and Techniques of Wildlife Management</td>
<td>3</td>
</tr>
<tr>
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<td>Complete one of the following:</td>
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<tr>
<td>WLF F305</td>
<td>Wildlife Diseases</td>
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<tr>
<td>WLF F433</td>
<td>Conservation Genetics</td>
<td></td>
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<tr>
<td>WLF F469</td>
<td>Landscape Ecology and Wildlife Habitat</td>
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Complete three from the following: 9

<table>
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<th>Title</th>
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<tr>
<td>BIOL F425</td>
<td>Mammalogy</td>
<td></td>
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<tr>
<td>BIOL F426</td>
<td>Ornithology</td>
<td></td>
</tr>
<tr>
<td>WLF F421</td>
<td>Ecology and Management of Large Mammals</td>
<td></td>
</tr>
<tr>
<td>WLF F425</td>
<td>Ecology and Management of Birds</td>
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Complete two from the following: 6

<table>
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<th>Title</th>
<th>Credits</th>
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<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
<td></td>
</tr>
<tr>
<td>HIST F411</td>
<td>Environmental History</td>
<td></td>
</tr>
<tr>
<td>NRM F204</td>
<td>Public Lands Law and Policy</td>
<td></td>
</tr>
<tr>
<td>NRM F403</td>
<td>Environmental Decision-Making</td>
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</tr>
<tr>
<td>NRM F407</td>
<td>Environmental Law</td>
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</tr>
<tr>
<td>PS F447</td>
<td>U.S. Environmental Politics</td>
<td></td>
</tr>
</tbody>
</table>

Complete at least two additional courses at the F300 level or higher (3 or 4 credits) in biology, wildlife biology, fisheries or natural resources management

1 Fulfills the baccalaureate capstone requirement (junior or senior standing).

Requirements for biology teachers (grades 7-12)

Note: We strongly recommend that prospective secondary science teachers seek advising from the Alaska College of Education early in their undergraduate degree program so they can be appropriately advised of the State of Alaska requirements for teacher licensure. Students will apply for admission to the Alaska College of Education's postbaccalaureate teacher preparation program, a one-year intensive program, during their senior year. The above requirements apply to all candidates who apply to the Alaska College of Education for licensure in biology.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Complete all the requirements of the wildlife biology B.S. degree.</td>
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<tr>
<td></td>
<td>All prospective biology teachers must complete the following:</td>
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</tr>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F481</td>
<td>Principles of Evolution</td>
<td>4</td>
</tr>
<tr>
<td>CHEM F321</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>and CHEM F325</td>
<td>and Organic Chemistry II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All prospective science teachers must complete the following:</td>
<td></td>
</tr>
<tr>
<td>PHIL F481</td>
<td>Philosophy of Science</td>
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</tbody>
</table>

Minor, Wildlife Biology and Conservation
Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL F471</td>
<td>Population Ecology</td>
<td>3</td>
</tr>
<tr>
<td>WLF F301</td>
<td>Design of Wildlife Studies</td>
<td>3</td>
</tr>
<tr>
<td>WLF F322</td>
<td>Principles and Techniques of Wildlife Management</td>
<td>3</td>
</tr>
<tr>
<td>Approved BIOL and WLF electives</td>
<td>Only biology or wildlife electives that are not required for the student’s major.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Note: Prerequisites for required courses include BIOL F115X, BIOL F116X, BIOL F371, BIOL F310 and STAT F200X or STAT F300. Depending upon a student’s major, some of these prerequisites may satisfy the 6 elective credits in biology and wildlife required for this minor.

Women, Gender and Sexuality Studies

College of Liberal Arts
907-474-6249
http://www.uaf.edu/women/

Minor Only

Women, gender and sexuality studies offers an interdisciplinary minor focusing on women, gender and sexuality in historical and contemporary experiences. In addition, the minor offers students the opportunity to study multiple issues related to gender, such as masculinities, femininities and sexualities. In addition to an introductory course and a theory course focusing on women’s studies, the minor draws from a variety of other disciplines, including Alaska Native studies, anthropology, communication, education, English, foreign languages, history, journalism, justice, linguistics, literature, music, philosophy, political science, psychology, social work and sociology. The particular strength of the program lies in being interdisciplinary, with diverse course offerings and inquiry into gender and sexuality issues. The multiple voices and perspectives provide broad understanding of issues related to women, gender and sexuality. The minor helps students prepare for a variety of personal and career pursuits, as gender issues and women are involved in every aspect of human experience.

Minor

• Minor, Women, Gender and Sexuality Studies (p. 252)

Minor, Women, Gender and Sexuality Studies

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women’s Gender and Sexuality Studies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

1 Additional credits from courses cross-listed with WGS and that are from two or more disciplines are subject to the approval of a women, gender and sexuality studies advisor.

Yup’ik Language and Culture

College of Liberal Arts
Department of Alaska Native Languages
907-543-4500 or 907-474-7874
http://www.uaf.edu/anlc/classes/
Program available at Kuskokwim Campus only

B.A. Degree

Minimum Requirements for Degree: 120 credits

The Yup’ik language and culture, or Yupiit Nakmiin Qaneryaraat Piciryaraat-Ilu, program strives to reinforce a Yup’ik identity that is centrally dependent on the language and culture, prepares the student for success in the world, and leads to acceptance at home. The program is based on the philosophy that a strong command of the Yup’ik language leads to a complete understanding of the Yup’ik way of life, the world around us, and our place in it.

Depending on interest, students in the program are encouraged to complete a minor in education or Alaska Native and rural development.

Degree

• B.A., Yup’ik Language and Culture (p. 252)

B.A., Yup’ik Language and Culture

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F401</td>
<td>Cultural Knowledge of Native Elders</td>
<td>3</td>
</tr>
<tr>
<td>or ANS F461</td>
<td>Native Ways of Knowing</td>
<td></td>
</tr>
<tr>
<td>YUP F130</td>
<td>Beginning Yup’ik Grammar</td>
<td>3</td>
</tr>
<tr>
<td>YUP F131</td>
<td>Beginning Yup’ik Grammar II</td>
<td>3</td>
</tr>
<tr>
<td>YUP F203</td>
<td>Conversational Central Yup’ik III</td>
<td>3</td>
</tr>
<tr>
<td>YUP F204</td>
<td>Conversational Central Yup’ik IV</td>
<td>3</td>
</tr>
<tr>
<td>YUP F205</td>
<td>Regaining Fluency in Yup’ik</td>
<td>3</td>
</tr>
<tr>
<td>YUP F206</td>
<td>Regaining Fluency in Yup’ik II</td>
<td>3</td>
</tr>
<tr>
<td>YUP F208</td>
<td>Yup’ik Composition</td>
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<td>YUP F240</td>
<td>Introduction to Reading and Writing Yup’ik</td>
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<td>YUP F301</td>
<td>Advanced Central Yup’ik</td>
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<tr>
<td>YUP F488</td>
<td>Documenting Yup’ik Traditions/Caliaarka</td>
<td>3</td>
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1 Fulfills the baccalaureate capstone requirement.
Pre-professional Opportunities

UAF students may develop a program of study that prepares them for a variety of professional or graduate programs. Pre-professional advising provides information about groundwork for admission to a specific graduate program or professional school. Most professional schools do not require a specific major for admission to their program. However, many courses may be required before admittance into the program, so a student must research admissions requirements carefully.

The Academic Advising Center (907-474-6396, uaf.advising@alaska.edu) provides academic advising for all pre-professional areas (http://www.uaf.edu/advising/student-resources/#preprof). The Biology and Wildlife Department (https://www.bw.uaf.edu) and the Department of Chemistry and Biochemistry (https://www.uaf.edu/chem) provide additional academic advising for the medical, dental, pharmacy, veterinary and allied health pre-professional programs. The Justice Department provides academic advising for law pre-professional programs.
HOW TO EARN A GRADUATE DEGREE

General university and specific degree requirements for UAF graduate programs are described in this section of the catalog, along with requirements for each graduate program. You'll find instructions for applying for admission in the Applying for Admission: Graduate Degree Programs (p. 31) section.

Academics, Policies and Regulations

Many academic policies and regulations apply to both graduate and undergraduate students. These guidelines are relevant to your academic experience at UAF and important for you to read and understand. Topics include definitions and requirements for official university communications, full- and part-time student status, academic progress, academic dismissal, grading system and policies, FERPA and the student code of conduct. See UAF academics, policies and regulations (p. 49).

General University Requirements

• Catalog and Time Limit
You may elect to graduate under the degree requirements in effect and published in the UAF catalog in any one of the previous seven years in which you are enrolled as a master’s degree student, or in the previous 10 years if you are a doctoral student. To be considered enrolled in your master’s or doctoral degree program you must meet the registration requirements per academic year. If you enroll through the nondegree student registration process, you are not considered enrolled as a degree student during that time.
All nonacademic policies and regulations listed in the current catalog apply, regardless of the catalog you are using for your degree requirements. You must satisfactorily complete all course work listed on your Advancement to Candidacy form and all other degree requirements within seven years for a master’s degree and 10 years for a doctoral student.

• Grades and Grade Point Average
You must have a cumulative GPA of 3.0 in the courses identified on your Advancement to Candidacy form to remain in good standing and to graduate. In addition, for the purpose of satisfying degree requirements, you must earn a B (3.0) or better (no P grades) in each F400-level course and a C grade (2.0) or better in each F600-level course. NOTE: A B- is less than a 3.0 and, if obtained in a F400-level course, will not count for meeting degree requirements; likewise, a C- is less than a 2.0 and, if obtained in a F600-level course, will not count for meeting degree requirements.

• Registration Requirement
Graduate students must be registered for at least 6 credits per year (fall, spring, summer), at the graduate or F400-level in courses relevant to the graduate degree, while actively working toward a degree. Those who wish to temporarily suspend their studies should obtain an approved leave of absence.
Additionally you must be registered in both the semester that you defend and the semester in which you receive your degree as per the requirements under Graduation (p. 256).

• Temporary Leave of Absence
If you need to temporarily suspend studies while earning a graduate degree, you must obtain an approved leave of absence. If you fail to register for at least 6 graduate or F400-level credits in a school year (fall, spring or summer semester) or to obtain a leave of absence, you will be dropped from graduate study and will have to be reinstated before resuming graduate studies. Contact the Graduate School for information at 907-474-7464.

• Transfer Credit
Up to one-half of all graduate degree credits approved for a graduate program may be transferred from UAA and UAS. No more than one-third of approved program credits may be transferred from other accredited institutions outside the UA system. Transferred credits may not be used from previously earned undergraduate degrees. A minimum B grade (3.0) is required in all graduate courses presented for transfer. A P grade (pass) is not acceptable for transfer credit.

• Credits Earned While Nondegree Seeking
A student who earned post-baccalaureate degree credits while studying as a nondegree student at UAF may, with approval of the graduate advisory committee, apply those credits toward a graduate degree. However, no more than one-half of all credits used to meet the requirements of a graduate degree may be credits earned as a nondegree student.

• Course Restrictions
You may not use credit by examination, audited courses, F100-, F200-, F300-, and F500-level courses, or courses taken under the credit/no credit option to fulfill the basic course requirements of any degree program. No more than 12 credits of special topics courses (F693 or F695) or individual study (F697) may be used toward a graduate degree. The dean of the Graduate School must approve requests for exceptions to the limit.

• Deficiencies
Your advisory committee may require that you remedy certain deficiencies in your program. Your committee will determine early in the program both how to remedy the deficiencies and the minimum level of performance required of you. Graded undergraduate courses taken to remedy a deficiency must receive a grade of B (3.0) or better. Deficiency courses are not listed on the Advancement to Candidacy form.

• English Proficiency
You must be proficient in written and oral English. Your advisory committee will determine requirements to remove any such deficiencies. These requirements may not be used to fulfill the language/research tool requirement of some departments.

• Cooperative Programs
Some students may develop cooperative programs using specific courses from other universities before being admitted to graduate study at UAF. As part of the application process, the cooperative program must be included in an approved Graduate Study Plan. The student must complete a minimum of 12 semester credits in residence at UAF, in addition to thesis and research. The following guidelines are for collaborative Ph.D. graduate studies across all UA academic units. Some individual degree programs have additional requirements which are included in specific program descriptions in the graduate degree program (p. 259) section. The guidelines described here apply only to programs that have not established different requirements.

1. At least four faculty members shall serve on the graduate advisory committee for each Ph.D. student. At least two committee members shall be UAF faculty. One of the UAF committee members must be on a tenure-track appointment in a Ph.D. granting department. The committee shall be chaired or co-chaired by a UAF faculty member.
2. The graduate advisory committee and its chair and/or co-chairs must be approved by the program director and the dean of the Graduate School.
3. UAF rules and regulations on graduate studies shall apply to all UAF graduate students, including those concurrently enrolled at UAA and UAS.
4. The graduate advisory committee must meet at least once a year to update the Graduate Study Plan and to review the student’s progress toward the degree. The annual progress report must be signed by all committee members and submitted to the dean of the UAF Graduate School.
5. A comprehensive exam committee composed of the student’s advisory committee will administer the Ph.D. comprehensive exam for each student.
6. The Ph.D. thesis defense is to be conducted on the UAF campus.

GRADUATE ADVISORY COMMITTEE

A graduate advisory committee is normally appointed within the first semester of study to guide students in developing and completing their degree programs. Committee members for graduate degrees are approved by the appropriate dean, usually upon recommendation of the department head, and by the dean of the Graduate School. Advisory committees for interdisciplinary students are approved by the dean of the Graduate School. Each interdisciplinary student follows procedures through the department of his or her advisory committee chair. The committee chair’s department will be the “home” of the interdisciplinary student for academic purposes.

The graduate advisory committee’s major responsibilities are to formulate a graduate study plan, in consultation with the student, by the end of the student’s second semester in the graduate program; to develop a tentative timetable for completion of all requirements for the degree program; to monitor the student’s progress in course work and research; to provide advice and feedback to the student on that progress; to file an Annual Report of Graduate Student Advisory Committee with the Graduate School; to approve where appropriate, a research topic; to supervise the preparation of the research thesis or project when one is required; to uphold the standards of the college/school and the university; to inform the dean, in writing, if a student’s performance is inadequate and provide relevant recommendations; and to formulate and conduct the comprehensive examination and other exams as required by the department. The student’s advisor (major professor, advisory committee chair) acts as head of the graduate advisory committee and takes the lead in fulfilling these responsibilities.

- **Master’s Degree**
  - The core advisory committee of master’s degree students must consist of three approved UAF faculty members. Participating faculty above this number are considered additional committee members. Committee membership must be approved by the home department, unit dean and the dean of the Graduate School.
  - Retired or emeritus UAF faculty who have an association with the home department may serve on master’s advisory committees, upon expressed approval by the home department.
  - Faculty from other universities and other professionals who are not employed by UAF may serve as either core or additional committee members on master’s advisory committees, upon expressed approval by the home department. They may not serve as the chair of an advisory committee, but may serve as co-chair.

- **Doctoral Degree**
  - The core advisory committee of doctoral degree students must consist of four approved UAF faculty members (all must have a Ph.D. or equivalent). For interdisciplinary students, one advisory committee member must be from a Ph.D.-granting department or be approved as the graduate school representative by the graduate school dean, based on prior experience advising Ph.D. students. Participating faculty above this number are considered additional committee members. Committee membership must be approved by the home department, unit dean and the dean of the Graduate School.
  - Retired or emeritus UAF faculty who have an association with the home department may serve on doctoral advisory committees, upon expressed approval by the home department.
  - Faculty from other universities and other professionals who are not employed by UAF may serve as either core or additional committee members on doctoral advisory committees (all must have a Ph.D. or equivalent), upon expressed approval by the home department. They may not serve as the chair of an advisory committee, but may serve as co-chair.

GRADUATE STUDY PLAN

Graduate students must file a Graduate Study Plan with the Graduate School before the end of their second semester in a UAF graduate degree program. The GSP outlines the curriculum of study and a timetable the student must follow in meeting graduate degree requirements. The GSP is prepared by the advisory committee in consultation with the student. It is an agreement of mutual expectations between the student and the faculty committee. The GSP not only contains the specific degree requirements but also indicates the mechanism for fulfilling these requirements (e.g., via course work, examinations, readings, internships or other supervised experience) and a projected timetable.

CHANGING PROGRAMS

Graduate students may change their program only when the areas of emphasis or the degree are within the same department (e.g., from an M.A. in anthropology to a Ph.D. in anthropology, or from a Ph.D. in Biochemistry and molecular biology to a Ph.D. in environmental chemistry). If the change meets those requirements, you may change programs by completing a change of major form, available from the Graduate School’s website. Regardless of when you submit the form, a change of program doesn’t become effective until the beginning of the upcoming fall or spring semester. If, however, you want to change to a program in a different department, school or college (e.g., from an M.S. in civil engineering to an M.S. in biology), you must submit a new application for admission so faculty in the new degree program may fully review your credentials. For more information, contact the Graduate School at 907-474-7464.

ADVANCEMENT TO CANDIDACY

Advancement to candidacy formally establishes your specific degree requirements and should be done as soon as possible after qualifying. You are required to submit your application for advancement to candidacy one semester before you are awarded your degree.

The finalized Graduate Study Plan should be the basis for completing the Advancement to Candidacy form. Students must have a cumulative GPA of 3.0 in the courses identified on the Advancement to Candidacy form. For the purpose of satisfying degree requirements students must earn a B (3.0) or better (no P grades) in each F400-level course and a C grade (2.0) or better in each 600 level course. A B- is less than a 3.0 and, if obtained in a F400 course, will not count for meeting degree requirements (e.g., via course work, examinations, readings, internships or other supervised experience) and a projected timetable.
requirements; likewise a C- is less than a 2.0, and if obtained in a F600-level course, will not count for meeting degree requirements.

Admission to graduate study does not imply advancement to candidacy for a degree. The graduate advisory committee has the option of refusing to recommend a student to candidacy.

• Master's Degree
You may apply for advancement to candidacy for a specific master's degree if you are in good standing and you have:
1. Satisfactorily completed at least 9 semester credits of graduate study at UAF (study after admission to a specific degree program).
2. Received approval of a provisional thesis or project topic, if applicable.
3. Received approval of the finalized Graduate Study Plan, including specific course work to be completed and any other requirements.

• Doctoral Degree
You may apply for advancement to candidacy for the Ph.D. degree if you are in good standing and you have:
1. Completed the full time equivalent of two academic years of graduate study.
2. Completed at least 9 UAF credits.
3. Received approval of the Graduate Study Plan.
4. Obtained approval of the advisory committee for the title and synopsis of the thesis.
5. Passed a written comprehensive examination.

EXAMINATIONS
Examinations are given in both written and oral form, depending upon the policy of the program unit, the decision of the advisory committee and the specific examination being taken.

• Placement Examinations
Some programs have formalized placement exams designed to pinpoint a student’s strengths and weaknesses as an aid in developing the Graduate Study Plan. This evaluation is carried out during the student’s first semester at the university, preferably in the first month, and may be written, oral or both.

• Qualifying Examinations
A few master’s degree programs require the student to complete a written and/or oral qualifying examination before advancement to candidacy. This examination is an interim evaluation of academic progress; the student may pass unconditionally or conditionally. A conditional pass indicates specific weaknesses that the student must remedy before degree requirements are completed. The Graduate Study Plan and later the Advancement to Candidacy form should include mechanisms for addressing these weaknesses.

• Comprehensive Examination
The comprehensive examination is given to determine whether the student has integrated knowledge and understanding of the principles and concepts underlying major and related fields. It may be oral or written or a combination of both. Ph.D. degree students normally take a written comprehensive examination within two academic years of entering the program, but no later than two academic years before the expected completion of the degree (whichever is earliest). The Ph.D. student’s advisory committee may choose to give an oral examination to supplement the written comprehensive examination. Each Ph.D. student must pass the comprehensive examination prior to advancement to candidacy.

• Defense of Project
Graduate Students who are required to complete a project in partial fulfillment of degree requirements must pass an oral defense of project examination. The defense will consist of a presentation followed by questions on the research, analysis and written presentation. All committee members must participate at the project defense.

• Defense of Thesis or Dissertation Examination
Graduate students who are required to complete a thesis in partial fulfillment of degree requirements must pass an oral defense of thesis examination. The defense will consist of a presentation followed by questions on the research, analysis and written presentation. The Graduate School will not accept a thesis or dissertation for final submission until the student has successfully defended it. The Ph.D. dissertation defense is to be conducted on the UAF campus. All committee members must participate in the defense of thesis or dissertation.

• Examination Committee
In most cases, the student’s graduate advisory committee prepares and gives the examinations under guidelines formulated by the faculty of the department in which the degree is being taken. In a few programs, examinations are replaced or supplemented by departmental or school examinations and administered by an established examining committee.

• Outside Examiner
An outside examiner representing and appointed by the dean of the Graduate School is required at all Ph.D. oral examinations (except the placement examination). The examiner must be from a different department than the student and the chair of the advisory committee. The outside examiner is present to determine that a stringent, unbiased examination is fairly administered and evaluated.

• Language/Research Tool Requirement
Proficiency in a second language or a research tool is not a university requirement, but some departments or programs may make this requirement. An advisory committee may specify a language or research tool if its requirements exceeds those of the program. The specific language or research tool is determined by the advisory committee, guided by policies of the administrative unit in which the degree is offered. Generally, competency in a second language is required. However, upon approval of the department or program head, the committee may substitute computer languages, statistics, mathematics, or study in areas such as history or philosophy of science, business, administration, law, or economics. In all instances, topics selected must support the student’s degree program.

GRADUATION
• Responsibility
You are responsible for meeting all requirements for graduation. You must be registered for a minimum of 3 graduate credits within your discipline and maintain enrollment in the semester that you successfully defend your thesis, and you must be registered for a minimum of 1 graduate credit within your discipline and maintain enrollment during the semester that you graduate. Your Advancement to Candidacy must be received by the Graduate School the semester before you intend to graduate.

• Application for Graduation
You must file an application for graduation and a non-refundable fee with the Office of the Registrar. We encourage you to work with your advisor/committee chair before applying for graduation to meet any departmental deadlines. Applications for graduation filed after the published deadline will be processed for graduation the
following semester. You need not have all requirements met before you apply for graduation. The application is an indication that you are planning to finish all degree requirements during the intended graduation semester. Students who apply for graduation and who do not complete degree requirements by the end of the semester must reapply for graduation and pay the fee again.

**Diplomas and Commencement**

UAF issues diplomas to graduates three times each year: in September, January, and June. All students who complete degree requirements during the academic year are invited to participate in the annual commencement ceremony at the end of spring semester. Names of students receiving degrees appear in the commencement program and are released to the media unless the student has a confidential hold on file with the Office of the Registrar. Students who do not want their names to be released may so indicate on the application for graduation form. Graduates are responsible for ordering caps and gowns through the UAF bookstore in early spring.

**Graduate Assistantships**

Graduate assistants receive stipends for either a semester or the academic year. Graduate assistants can be paid for a maximum of 20 hours per week while school is in session. Students with assistantships must be registered for at least 9 credits during both the fall and spring semesters (audited credits are not eligible).

Any exceptions to the 20-hour per week rule must be approved by the student’s committee chair, department head, college dean and dean of the Graduate School. Complete a Student Employee Waiver Form (available at http://www.alaska.edu/hr/forms/int_personnelforms/) to request approval of more than 20 student work hours per week. Foreign nationals on temporary student visas are not permitted to work more than 20 hours a week while classes are in session and are not eligible for an overload waiver.

Teaching assistantships include a tuition payment by the university for no more than 10 credits each semester if the workload is 15 to 20 hours per week. If the workload is 10 to 14 hours per week, no more than 5 credits will be included. No tuition will be included if the workload is less than 10 hours per week.

Research assistantships include a tuition payment by grants/contracts for no more than 10 credits during each semester if the workload is 15 to 20 hours per week. If the workload is 10 to 14 hours per week, no more than 5 credits will be included. No tuition will be included if the workload is less than 10 hours per week.

Tuition payments must be used for courses directly related to the student's degree program. All fees are the responsibility of the student unless the department or institute makes other arrangements with the UAF Graduate School prior to registration.

A graduate student with a GPA of less than 3.0 for one semester will be allowed to petition to continue as a graduate assistant for the next semester, but only once. The petition by the student must be approved by the student's advisory committee chair, department head, college dean and dean of the Graduate School.

**Graduate Certificates and Licensures**

Graduate certificate programs are designed to provide education past the baccalaureate level and/or to meet clearly defined educational needs of students who have already completed a master’s degree. Completion of a graduate certificate should prepare students to better accomplish their goals or meet employment criteria.

These programs provide the student with formal recognition of mastery of a clearly defined academic topic. The credit hours may be applied to other graduate programs where applicable.

Note that graduate certificates and graduate licensure programs follow the same policies as master’s degree programs.

**Requirements for Graduate Certificates and Licensures**

In order to earn a graduate certificate, students must be admitted to the program and complete the requirements listed in the program section of this chapter. Most graduate certificates are between 12-18 credits. Graduate licensures require a minimum of 24 credits. You must have a cumulative GPA of at least 3.0 in all course work and be registered in the semester you plan to graduate.

Students may elect to complete their program under the requirements of the catalog in effect at the time of formal acceptance to a graduate certificate program or the catalog in effect at the time of graduation. Students may earn more than one graduate certificate by completing all requirements for each additional program.

**Requirements for Graduate Degrees**

**Master’s Degrees**

UAF offers research-oriented (thesis or project) and practice-oriented (non-thesis) master’s degrees. Research-oriented programs are designed to direct graduate students toward scholarly activity that leads to the acquisition of new knowledge. Practice-oriented programs prepare graduate students for professional practice and direct them toward application or transmission of existing knowledge. All degree requirements must be completed within a seven-year period. UAF tenured faculty, tenure track faculty and research faculty are not eligible to become candidates for a graduate degree within the discipline in which they teach.

The minimum requirements for a master’s degree at UAF are as follows (individual departments may have additional requirements):

**Steps Required for All Master’s Degrees (excludes MBA and M.S.D.M. degrees)**

1. Formulate a unified degree program in cooperation with your graduate advisory committee. Degree programs must be composed of courses in the discipline or clearly related to and/or supportive of that discipline. All courses to be applied toward the degree must be approved by the advisory committee and follow the requirements set forth by the department that sponsors the degree.

2. Master’s degree students must:
   a. Meet all requirements set forth in the General University Requirements (p. 254) section.
   b. Submit an Appointment of Committee form by the end of the first semester of study.
   c. Submit a Graduate Study Plan by the end of the second semester of study.
   d. Submit a Report of Advisory Committee form by May 15 of every year.
   e. Pass a written and/or oral comprehensive examination which may be combined with a project or thesis defense. Some
programs (e.g., the M.Ed. degree program) may substitute a synthesizing paper for the comprehensive examination. This includes demonstration of the ability to synthesize information in the field at a level appropriate for a master’s degree.

f. Submit an Advancement to Candidacy form to the Graduate School. Once submitted, this form supplants the GSP and formally establishes specific degree requirements.

g. Pass an oral defense of the thesis or project if a thesis or project is required.

h. Register as necessary and apply to graduate per the requirements noted in the Graduation (p. 256) section.

i. Complete all degree requirements within the seven-year time limit.

j. Archive thesis or project in the UAF Rasmuson Library if a thesis or project is required.

**Steps Required for MBA and M.S.D.M. degrees**

a. Formulate a unified degree program in cooperation with your graduate advisor. Degree programs must be composed of courses in the discipline or clearly related to and/or supportive of that discipline. All courses to be applied toward the degree must be approved by the advisor and follow the requirements set forth by the department that sponsors the degree.

b. MBA and M.S.D.M. degree students must:
   i. Meet all requirements set forth in the General University Requirements section.
   ii. Submit a Report of Advisory Committee form by May 15 of every year.
   iii. Submit an Advancement to Candidacy form (or equivalent as pertains to MBA and M.S.D.M. programs) to the Graduate School. Once submitted, this form formally establishes the specific degree requirements.
   iv. Register as necessary and apply to graduate per the requirements noted in the Graduation section.
   v. Complete all degree requirements within the seven-year time limit.

**Credit Requirements**

1. Successfully complete a minimum of 30 semester credits, of which 21 semester credits must be at the graduate level, including thesis and research. Remaining credits may be applied from courses at the F400-level.

2. No F100-, F200-, F300-, or F500-level credits or audited courses may be applied toward master’s degree requirements.

3. For programs requiring a thesis, a maximum of 12 credits of thesis (699)/research (698) (with a minimum of 6 credits of thesis) may be applied toward degree requirements. For programs requiring a project, a maximum of 6 research (698) credits may be applied toward degree requirements. A student may enroll in as many thesis and/or research credits as needed to remain in good standing.

**Second Master’s Degree Programs**

At the discretion of your advisory committee, admitting department and dean, you may transfer up to 20 percent of the minimum number of credits required for a UAF master’s degree from a previously earned master’s degree. Transferred credit may not be research, project or thesis credit. The transferred credit must be for completed graduate-level courses and not portions of a course. For a 30-credit master’s degree, for example, up to 6 graduate credits may be transferred; for a 45-credit master’s degree, up to 9 graduate credits may be transferred. The following requirements apply to students who wish to pursue a second master’s degree:

1. Submit a new application, including application processing fee, updated transcripts and three new reference letters.

2. Acceptable GRE scores submitted previously may be applied to a second master’s degree.

3. Fulfill all general university requirements for the second master’s degree, including taking a comprehensive exam (if required), completing a minimum of 30 semester credits (including thesis, research and transfer credits), and passing a defense of thesis or project.

4. All work used to fulfill degree requirements for a second master’s degree must be completed within seven years.

**DOCTOR OF PHILOSOPHY DEGREE**

The Doctor of Philosophy degree is granted in recognition of scholarly attainment and proven ability. UAF tenured faculty, tenure track faculty and research faculty are not eligible to become candidates for a graduate degree within the discipline in which they teach at UAF.

**Steps Required for all Doctoral Degrees**

1. The Ph.D. degree requires at least three full years of study beyond the baccalaureate degree. (See transfer credit (p. 34).)

2. In addition to satisfactory completion of a plan of study developed in accordance with requirement listed above, the Ph.D. candidate must:
   a. Meet all requirements set forth in the General University Requirements (p. 254) section.
   b. Submit an Appointment of Committee form by the end of the first semester of study.
   c. Submit a Graduate Study Plan by the end of the second semester.
   d. Submit a Report of Advisory Committee form by May 15 of every year.
   e. Pass a written comprehensive exam.
   f. Submit an Advancement to Candidacy form to the Graduate School. Once submitted, this form supplants the GSP and formally establishes specific degree requirements.
   g. Satisfactorily complete a dissertation that is a substantial contribution to the body of knowledge in the area studied.
   h. Pass an oral defense of the dissertation (an outside examiner is required). The oral defense of the dissertation must be conducted on the UAF campus.
   i. Apply for graduation and be registered for a minimum of 3 graduate credits within your discipline and maintain enrollment in the semester that you successfully defend your thesis and you must be registered for a minimum of 1 graduate credit within your discipline and maintain enrollment during the semester that you graduate.
   j. Complete all degree requirements within the 10-year time limit.
   k. Archive dissertation in the UAF Rasmuson Library.

**Credit Requirements**

1. A minimum of 18 thesis (F699) UAF credits must be earned.

2. No F100-, F200-, F300-, F500-level credits or audited courses may be applied toward the Ph.D.’s degree requirements.

**Exceptions to Degree Requirements**

Deviations from academic requirements and regulations for graduate students must be approved by academic petition using the form available on the Graduate School website. Petitions must be approved by the
Types of Master’s Degrees

**MASTER OF ARTS — WITH THESIS**
1. Successfully complete at least 30 credits of course work including at least 6 credits of thesis (F699). No more than 12 thesis/research (F699/F698) credits may be counted toward the minimum degree credits. At least 21 credits, including those earned for thesis and research/project, must be at the F600-level.
2. Pass a written and/or oral comprehensive examination (may be combined with the thesis defense).
3. Present and defend the thesis.
4. Submit a completed and signed thesis defense form to the Graduate School.
5. Archive the thesis in the UAF Rasmuson Library.

**MASTER OF ARTS — WITH PROJECT**
1. Successfully complete at least 30 credits of course work including at least 6 credits of project work (F698), unless the degree requirements of a particular program specify that a 3-credit project is permitted. No more than 6 research (F698) credits may be counted toward the minimum degree credits. At least 21 credits, including those earned for thesis and research/project, must be at the F600-level.
2. Pass a written and/or oral comprehensive examination (may be combined with the project defense).
3. Present and defend the project.
4. Submit a completed and signed project defense form to the Graduate School.
5. Archive the project in the UAF Rasmuson Library.

**MASTER OF SCIENCE — WITH PROJECT**
1. Successfully complete at least 30 credits of course work including at least 6 credits of project work (F698), unless the degree requirements of a particular program specify that a 3-credit project is permitted. No more than 6 research (F698) credits may be counted toward the minimum degree credits. At least 21 credits, including those earned for thesis and research/project, must be at the F600-level.
2. Pass a written and/or oral comprehensive examination (may be combined with the project defense).
3. Present and defend the project.
4. Submit a completed and signed project defense form to the Graduate School.
5. Archive the project in the UAF Rasmuson Library.

**MASTER OF SCIENCE — WITH THESIS**
1. Successfully complete at least 30 credits of course work including at least 6 credits of thesis (F699). No more than 12 thesis/research (F699/F698) credits may be counted toward the minimum degree credits. At least 21 credits, including those earned for thesis and research/project, must be at the F600-level.
2. Pass a written and/or oral comprehensive examination (may be combined with the thesis defense).
3. Present and defend the thesis.
4. Submit a completed and signed thesis defense form to the Graduate School.
5. Archive the thesis in the UAF Rasmuson Library.

**MASTER OF BUSINESS ADMINISTRATION**
1. Complete at least 30 credits of course work. At least 24 credits must be at the F600-level (6 at the F400-level).
2. Successful completion of a capstone course that includes demonstration of the ability to synthesize information in the field at a level appropriate for a master’s degree.

**MASTER OF EDUCATION**
A general description is available in education (p. 273).

**MASTER OF FINE ARTS**
A general description is available in creative writing (see English (p. 289)) and art (p. 262).

**MASTER OF NATURAL RESOURCES AND ENVIRONMENT**
A general description is available in natural resources and environment (p. 304).

**MASTER OF MARINE STUDIES**
A general description is available in marine studies (p. 301).

**MASTER OF SECURITY AND DISASTER MANAGEMENT**
1. Complete at least 30 credits of course work. At least 24 credits must be at the F600 level (6 at the F400-level).
2. Successful completion of a capstone course that includes demonstration of the ability to synthesize information in the field at a level appropriate for a master’s degree.

**SPECIALIZED PROGRAMS**
The master’s programs in Arctic and Northern studies, administration of justice and rural development at UAF have been selected as unique or specialized graduate programs by the Western Regional Graduate Program of the Western Interstate Commission for Higher Education. This designation means that residents of Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington and Wyoming who major in any of these specialized programs at UAF pay resident tuition.

Additional information is available at uaf-grad-school@alaska.edu or 907-474-7464.

**Graduate Degree Programs**

**Anthropology**

College of Liberal Arts
Department of Anthropology
907-474-7288
http://www.uaf.edu/anthro/

**M.A., Ph.D. Degrees**

Minimum Requirements for Degrees: M.A.: 30-36 credits; Ph.D.: 18 thesis credits

The anthropology program offers a balanced and flexible program of academic courses and research opportunities in cultural anthropology, linguistic anthropology, archaeology and biological anthropology. Anthropology contributes to an understanding of the complex problems of human behavior, biology, language, cultural and social organization,
and the relationship of humans to their environments. Research carried out in the field, laboratory and library emphasizes past and present modes of living and the origins and distribution of peoples and cultures throughout the world, with special attention to the circumpolar North.

The graduate program emphasizes general preparation in the field of anthropology. Such preparation enables graduates of the master’s program to pursue more advanced training leading to the Ph.D. in anthropology, prepares them to teach anthropology within secondary education and/or undergraduate levels of higher education or prepares students for career positions with various levels of government in which some anthropological background and/or expertise is beneficial. Field research in Alaska is a common experience for graduate students in anthropology. All students must have fieldwork and laboratory experience appropriate to the discipline or subdiscipline.

The primary focus of the Ph.D. program is on the circumpolar North, although graduate students and faculty also conduct research elsewhere, in particular Africa and North America. The Ph.D. is available with an emphasis in any of the four subfields of anthropology.

**Degrees**
- M.A., Anthropology (p. 260)
- Ph.D., Anthropology (p. 260)

**M.A., Anthropology**
- Complete the admission process including the following:
  1. Submit GRE scores.

**Minimum Requirements for Degree: 30-36 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F629</td>
<td>Structures of Anthropological Argument</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F652</td>
<td>Research Design and Professional Development Seminar</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F698</td>
<td>Non-thesis Research/Project</td>
<td>6</td>
</tr>
<tr>
<td>or ANTH F699</td>
<td>Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Complete four semesters of a foreign language or proficiency in a research tool.  

Complete 18 credits established by the advisory committee  

**Note:** At least 24 credits must be regular course work (not research or thesis) with 21 of these credits at the F600 level.

**Ph.D., Anthropology**
- Complete the admission process including the following:
  - Submit GRE scores.

**Minimum Requirements for Degree: 18 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F631</td>
<td>p. 257</td>
<td></td>
</tr>
<tr>
<td>ANTH F632</td>
<td>p. 258</td>
<td></td>
</tr>
<tr>
<td>ANTH F698</td>
<td>p. 260</td>
<td></td>
</tr>
</tbody>
</table>

*Students wanting a linguistic anthropology emphasis must complete the foreign language option as well as taking ANTH F631 and ANTH F632 as part of their 18 credits.

**Note:** At least 24 credits must be regular course work (not research or thesis) with 21 of these credits at the F600 level.

**Arctic and Northern Studies**

College of Liberal Arts
907-474-7126
Interdisciplinary
http://www.uaf.edu/arctic/

**M.A. Degree**

Minimum Requirements for Degree: 30 credits

The Arctic and Northern studies program offers an interdisciplinary study of Arctic and Northern problems and policy issues. The purpose of the Arctic and Northern studies program is to give interested students a broader study of the circumpolar region — its environment, peoples and challenges.

The geographic location of UAF is outstanding for the study of Arctic and Northern issues. Students examine the countries and regions throughout the circumpolar North, and their distinctive challenges, such as the survival of indigenous populations, environmental and wilderness issues, high rates of alcoholism and suicide, fragile environments, adaptation to extreme cold and cycles of light and darkness, and adult development in small frontier societies.

The M.A. program is designed especially for students who live and work in the North and who want to expand their knowledge of the history, economics, politics, psychology and anthropology of Arctic and Northern regions. Many Arctic and Northern studies students are seeking employment with Northern agencies and want to develop a broad perspective on Arctic and Northern issues. Some students plan to pursue doctoral work in a discipline such as history or anthropology and seek a master’s degree with a broad approach. Other students are employed as teachers, military personnel or agency staff and want a rich, interdisciplinary program. The program is suitable for any of these goals, and is designed to be compatible with either full- or part-time graduate study.

The M.A. program offers four concentrations: Northern history; Arctic policy; environmental politics and policy; and individualized study. Students of Northern history benefit from the availability of the Alaska and circumpolar collections of the Rasmuson Library, UA Museum of the North and the Polar Regions Collection. The Arctic policy concentration addresses international, national and subnational policy structures and processes, as well as the aims of policies developed to address challenges in the Arctic region. The environmental politics and policy concentration focuses on political, social and psychological responses to environmental change. The individualized study concentration allows
students to create a concentration with the guidance of their graduate advisory committee.

The program offers a thesis or nonthesis option. The choice of option is guided by the student’s interests and goals, the graduate advisory committee, and the requirements of the university. Faculty in the program are drawn from such disciplines as Alaska Native studies, art, anthropology, economics, English, geography, history, library science, political science and psychology.

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in Russia and the Commonwealth of Independent States, see study abroad and international exchange programs (p. 81).

**M.A. Degree**

- A bachelor’s degree from an accredited university.
- A minimum cumulative grade point average of 3.0 in your undergraduate studies.
- A minimum grade point average of 3.0 in your undergraduate major (exceptions are made for students with outstanding qualifications).

**Degree**

- M.A., Arctic and Northern Studies (p. 261)

---

**M.A., Arctic and Northern Studies**

Concentrations: Individualized Study, Environmental Politics and Policy, Northern History, Arctic Policy

<table>
<thead>
<tr>
<th>Minimum Requirements for Degree: 30 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
</tr>
</tbody>
</table>

**General University Requirements**
Complete the general university requirements. (p. 254)

**Master’s Degree Requirements**
Complete the master’s degree requirements. (p. 257)

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACNS F600</td>
<td>Perspectives on the North</td>
<td>3</td>
</tr>
<tr>
<td>ACNS F601</td>
<td>Research Methods and Sources in the North</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete two elective courses at the F400 or F600 level

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACNS F698</td>
<td>Non-thesis Research/Project</td>
<td>6</td>
</tr>
<tr>
<td>or ACNS F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
</tbody>
</table>

**Concentrations**

Complete one of the following concentrations: 12-21

- Individualized Study
- Environmental Politics and Policy
- Northern History
- Arctic Policy

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**Concentrations**

**INDIVIDUALIZED STUDY**

The individualized study concentration may be used as a basis for a M.A. thesis/project typically under the direction of a faculty member in the most relevant department.

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**ENVIRONMENTAL POLITICS AND POLICY**

The environmental politics and policy concentration may be used as a basis for the M.A. thesis/project.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACNS/PS F669</td>
<td>Arctic Politics and Governance</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 9 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACNS/PS F603</td>
<td>Public Policy</td>
<td></td>
</tr>
<tr>
<td>ACNS F611</td>
<td>Environmental History</td>
<td></td>
</tr>
<tr>
<td>ACNS/PS F647</td>
<td>U.S. Environmental Politics</td>
<td></td>
</tr>
<tr>
<td>ACNS/PS F654</td>
<td>International Law and the Environment</td>
<td></td>
</tr>
<tr>
<td>ACNS/PS F655</td>
<td>Political Economy of the Global Environment</td>
<td></td>
</tr>
<tr>
<td>ACNS/PS F656</td>
<td>Science, Technology and Politics</td>
<td></td>
</tr>
<tr>
<td>ACNS/PS F658</td>
<td>Comparative Environmental Politics</td>
<td></td>
</tr>
</tbody>
</table>

*Students may substitute one course from other Political Science offerings with approval of their graduate committee chair

**Note:** The environmental politics and policy concentration is a clear track toward interdisciplinary doctoral programs.

---

**NORTHERN HISTORY**

The Northern history concentration may be used for the M.A. thesis/project.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACNS F675</td>
<td>Historiography Capstone</td>
<td>3</td>
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</tbody>
</table>

Complete 9 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACNS F604</td>
<td>Modern Scandinavia</td>
<td></td>
</tr>
<tr>
<td>ACNS F611</td>
<td>Environmental History</td>
<td></td>
</tr>
<tr>
<td>ACNS F661</td>
<td>History of Alaska</td>
<td></td>
</tr>
<tr>
<td>ACNS/HIST F663</td>
<td>Imperial Russia, 1700-1917</td>
<td></td>
</tr>
<tr>
<td>ACNS/HIST F664</td>
<td>Soviet and Post-Soviet Russia</td>
<td></td>
</tr>
<tr>
<td>ACNS/HIST F681</td>
<td>Polar Exploration and Its Literature</td>
<td></td>
</tr>
<tr>
<td>ACNS/HIST F683</td>
<td>20th-century Circumpolar History</td>
<td></td>
</tr>
</tbody>
</table>
**ARCTIC POLICY**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS/ACNS F669</td>
<td>Arctic Politics and Governance</td>
<td></td>
</tr>
</tbody>
</table>

Complete 9 credits from the following: 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F603</td>
<td>Public Policy (also ACNS F603)</td>
<td></td>
</tr>
<tr>
<td>PS F650</td>
<td>Comparative Indigenous Rights and Policies</td>
<td></td>
</tr>
<tr>
<td>PS/ACNS F660</td>
<td>Government and Politics of Canada</td>
<td></td>
</tr>
<tr>
<td>ACNS F652</td>
<td>International Relations of the North</td>
<td></td>
</tr>
<tr>
<td>PS/ACNS F662</td>
<td>Alaska Government and Politics</td>
<td></td>
</tr>
<tr>
<td>PS/ACNS F668</td>
<td>Government and Politics of Russia</td>
<td></td>
</tr>
</tbody>
</table>

Complete 6 credits from the following: 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACNS F604</td>
<td>Modern Scandinavia</td>
<td></td>
</tr>
<tr>
<td>ANTH/ACNS F610</td>
<td>Northern Indigenous Peoples and Contemporary Issues</td>
<td></td>
</tr>
<tr>
<td>ECON F637</td>
<td>Evolution of Conservation Concepts and Policy</td>
<td></td>
</tr>
<tr>
<td>ACNS F661</td>
<td>History of Alaska</td>
<td></td>
</tr>
<tr>
<td>ACNS/HIST F664</td>
<td>Soviet and Post-Soviet Russia</td>
<td></td>
</tr>
<tr>
<td>ACNS/HIST F683</td>
<td>20th-century Circumpolar History</td>
<td></td>
</tr>
<tr>
<td>RD F601</td>
<td>Political Economy of the Circumpolar North</td>
<td></td>
</tr>
</tbody>
</table>

1 Students may substitute one course from other PS graduate offerings, with the approval of their graduate committee chair.

2 Students may substitute courses with approval of their graduate committee chair.

---

**Art**

College of Liberal Arts
Department of Art
907-474-7530
http://www.uaf.edu/art/

**M.F.A. Degree**

Minimum Requirements for Degree: 60 credits

The M.F.A. degree provides artists with the necessary background to compete for state, national and international positions. Career opportunities include placement in state and federal arts organizations, galleries, museums, colleges and universities. This degree includes exposure to contemporary art world issues, the historic role of the artist and northern art. The M.F.A. degree in visual art is a terminal degree. Study is two-thirds in studio art. The degree culminates in a solo gallery exhibition.

**Degrees**

- M.F.A., Art (p. 262)

**M.F.A., Art**

- Complete the following admission requirements:
  
  a. Submit a separate portfolio of work as specified in the Art Department guidelines.
  
  b. Complete a B.F.A. or B.A. in art from a university other than UAF (or from UAF with special permission from the Art Department faculty), or complete one consecutive year of classes from an accredited M.F.A. program other than UAF. In cases where an exceptional portfolio is submitted, students with another undergraduate degree will be accepted provisionally and with the condition that they make up any deficiencies as determined by their graduate committee.

Concentrations: Ceramics, Computer Art, Drawing, Native Arts, Painting, Photography, Printmaking, Sculpture

**Minimum Requirements for Degree: 60 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master's Degree Requirements</td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
</tbody>
</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F661</td>
<td>Mentored Teaching in Art</td>
<td>1</td>
</tr>
<tr>
<td>ART F663</td>
<td>Seminar in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ART F690</td>
<td>Current Problems</td>
<td>3</td>
</tr>
<tr>
<td>or ART F688</td>
<td>Professional Practices</td>
<td></td>
</tr>
<tr>
<td>ART F698</td>
<td>M.F.A. Project 1</td>
<td>5</td>
</tr>
<tr>
<td>or ART F699</td>
<td>M.F.A. Thesis Project</td>
<td></td>
</tr>
</tbody>
</table>

Electives in art history, humanities or philosophy 2

Courses may be chosen from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F624</td>
<td>Field Artists of the North</td>
<td></td>
</tr>
<tr>
<td>ART F625</td>
<td>Visual Images of the North</td>
<td></td>
</tr>
<tr>
<td>ART F663</td>
<td>Seminar in Art History</td>
<td></td>
</tr>
<tr>
<td>ART F673</td>
<td>History of the Role of the Artist</td>
<td></td>
</tr>
</tbody>
</table>

Complete at least two studio areas at the F600 level 3

Courses may be chosen from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F601</td>
<td>Ceramics</td>
<td></td>
</tr>
<tr>
<td>ART F603</td>
<td>Graduate Photography</td>
<td></td>
</tr>
<tr>
<td>ART F605</td>
<td>Drawing</td>
<td></td>
</tr>
<tr>
<td>ART F607</td>
<td>Printmaking</td>
<td></td>
</tr>
<tr>
<td>ART F609</td>
<td>Metalsmithing</td>
<td></td>
</tr>
<tr>
<td>ART F611</td>
<td>Sculpture</td>
<td></td>
</tr>
<tr>
<td>ART F613</td>
<td>Painting</td>
<td></td>
</tr>
<tr>
<td>ART F619</td>
<td>Life Drawing</td>
<td></td>
</tr>
<tr>
<td>ART F633</td>
<td>Graduate Field Painting</td>
<td></td>
</tr>
<tr>
<td>ART F648</td>
<td>Native Arts</td>
<td></td>
</tr>
<tr>
<td>ART F671</td>
<td>Two- and Three-dimensional Computer Design</td>
<td></td>
</tr>
<tr>
<td>ART F672</td>
<td>Advanced Computer Visualization in Art</td>
<td></td>
</tr>
<tr>
<td>ART F684</td>
<td>Multimedia Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>COJO F605/ART F665</td>
<td>Advanced Photography Seminar</td>
<td></td>
</tr>
</tbody>
</table>

1 Studio with two-hour oral comprehensive examination.

2 Students should seek approval of art history, humanities or philosophy elective courses from their advisor and/or committee prior to registration. Additional elective options may be available and F400 level courses may be taken with additional requirements.
Students should take 20 credits from their primary studio area, and 9 credits from their secondary studio area. The remaining credits should be comprised of studio credits and/or additional Mentored Teaching in Art ART F661 credits. Advisor and/or committee approval should be sought to ensure correct completion the credit requirement.

Note: Students with a graduate teaching assistantship (TA) are required to be enrolled in ART F661 Mentored Teaching in Art each semester they have a TA award.

Atmospheric Sciences

College of Natural Science and Mathematics
Department of Atmospheric Sciences
907-474-7368
http://www.uaf.edu/asp/

M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

The field of atmospheric science covers a wide variety of disciplines involving the physical and chemical properties and processes of the atmosphere. Emerging trends in atmospheric science stress the interactions of the atmosphere with other components (i.e. land, sea ice, ocean) in the total earth system.

The UAF Geophysical Institute, the International Arctic Research Center and other university research institutes support active research programs in high-latitude atmospheric science that include faculty from the biology, chemistry, physics and other departments. Current research by atmospheric sciences focuses on: atmospheric chemistry/biogeochemistry, climate modeling, cloud and aerosol physics, mesoscale modeling, numerical weather prediction and aviation weather. In addition, scientists affiliated with the research institutes conduct research on ocean-atmosphere interactions, dynamic meteorology, microclimatology, polar meteorology, radiative transfer, cryosphere-atmosphere interactions and remote sensing.

Graduate students are an integral component of this research, both in the laboratory and the field. Research institutes provide excellent environments for research in atmospheric science as well as interdisciplinary research with scientists in other research areas.

Admission to the Department of Atmospheric Sciences generally requires a degree in a scientific discipline, one year of calculus-based physics, math through differential equations and one semester of chemistry. Since atmospheric science is a highly interdisciplinary field, incoming student’s backgrounds vary considerably. Thus, acceptance into the program is made on a case-by-case basis.

Degrees

- M.S., Atmospheric Sciences (p. 263)
- Ph.D., Atmospheric Sciences (p. 263)

M.S., Atmospheric Sciences

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F601</td>
<td>Introduction to Atmospheric Sciences</td>
<td></td>
</tr>
<tr>
<td>ATM F606</td>
<td>Atmospheric Chemistry</td>
<td></td>
</tr>
<tr>
<td>ATM F613</td>
<td>Atmospheric Radiation</td>
<td></td>
</tr>
<tr>
<td>ATM F615</td>
<td>Cloud Physics</td>
<td></td>
</tr>
<tr>
<td>ATM F645</td>
<td>Atmospheric Dynamics</td>
<td></td>
</tr>
</tbody>
</table>

Complete the general university requirements. (p. 254)

Master’s Degree Requirements

Complete the master’s degree requirements. (p. 257)

Program Requirements

Complete four from the following basic courses in atmospheric sciences:

| ATM F601 | Introduction to Atmospheric Sciences |
| ATM F606 | Atmospheric Chemistry |
| ATM F613 | Atmospheric Radiation |
| ATM F615 | Cloud Physics |
| ATM F645 | Atmospheric Dynamics |

Complete one Thesis or Non-Thesis option listed below

18-24

Options

THESIS OPTION

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F699</td>
<td>Thesis - 6-12 credits</td>
<td></td>
</tr>
<tr>
<td>Approved F600 Level Courses - 6-12 credits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NON-THESIS OPTION A

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F698</td>
<td>Non-Thesis Research/Project</td>
<td>3</td>
</tr>
<tr>
<td>ATM F600 Level Course</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Approved F600 Level Courses</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

NON-THESIS OPTION B

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F698</td>
<td>Non-Thesis Research/Project</td>
<td>6</td>
</tr>
<tr>
<td>ATM F600 Level Course</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Approved F600 Level Courses</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Ph.D., Atmospheric Sciences

Minimum Requirements for Degree: 45 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F601</td>
<td>Introduction to Atmospheric Sciences</td>
<td></td>
</tr>
<tr>
<td>ATM F606</td>
<td>Atmospheric Chemistry</td>
<td></td>
</tr>
<tr>
<td>ATM F613</td>
<td>Atmospheric Radiation</td>
<td></td>
</tr>
<tr>
<td>ATM F615</td>
<td>Cloud Physics</td>
<td></td>
</tr>
<tr>
<td>ATM F645</td>
<td>Atmospheric Dynamics</td>
<td></td>
</tr>
</tbody>
</table>

Complete 12 additional approved credits, 6 of which should be ATM courses

Complete minimum of 18 thesis credits

12

18
Biochemistry and Neuroscience

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
http://www.uaf.edu/chem/

Ph.D. Degree
Minimum Requirements for Degree: 18 thesis credits

Biochemistry and neuroscience is an interdepartmental program administered by the Department of Chemistry and Biochemistry with research support through the Institute of Arctic Biology. A broad range of biomedical research experiences are available, including molecular and cellular neuroscience, proteomics, protein structure-function and molecular toxicology. The Arctic environment provides additional research opportunities in environmental biochemistry, adaptations and molecular genetics. Students seeking a M.S. degree in these research areas should see the M.S. chemistry with concentration in biochemistry and neuroscience degree.

UAF faculty and affiliate faculty at collaborating institutions provide a rich academic environment encompassing both research and comprehensive course offerings. Students with career interests in biotechnology, pharmaceutical sciences, environmental health, genetics and biomedicine are encouraged to apply. Students are normally accepted with financial support (fellowships, research assistantships and/or teaching assistantships) along with tuition waivers.

Degrees
• Ph.D., Biochemistry and Neuroscience with Biochemistry Concentration (p. 264)
• Ph.D., Biochemistry and Neuroscience with Neuroscience Concentration (p. 264)

Ph.D., Biochemistry and Neuroscience with Biochemistry Concentration

• Complete the following admission requirements:
  a. Submit GRE General Test scores
  b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

Minimum Requirements for Degree (including core courses): 38 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F654</td>
<td>Protein Structure and Function</td>
<td></td>
</tr>
<tr>
<td>CHEM F657</td>
<td>Molecular Foundations of Gene Expression</td>
<td></td>
</tr>
<tr>
<td>CHEM F674</td>
<td>Membrane Biochemistry and Biophysics</td>
<td></td>
</tr>
<tr>
<td>CHEM F675</td>
<td>Cellular Signaling</td>
<td></td>
</tr>
</tbody>
</table>

Complete three electives
Complete Ph.D. dissertation
Complete two seminar series (CHEM F692)

See Chemistry B.S. (p. 176) and M.S. (p. 266) programs.

See Environmental Chemistry (p. 290).

Ph.D., Biochemistry and Neuroscience with Neuroscience Concentration

Complete the following admission requirements:

a. Submit GRE General Test scores
b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

Minimum Requirements for Degree (including core courses): 38 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F654</td>
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<td></td>
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<td>CHEM F657</td>
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<td></td>
</tr>
<tr>
<td>CHEM F674</td>
<td>Membrane Biochemistry and Biophysics</td>
<td></td>
</tr>
<tr>
<td>CHEM F675</td>
<td>Cellular Signaling</td>
<td></td>
</tr>
<tr>
<td>CHEM F676</td>
<td>Neurochemistry</td>
<td></td>
</tr>
</tbody>
</table>

Complete three electives with two of the electives in neurosciences
Complete Ph.D. dissertation in a field of neuroscience
Complete two seminar series (CHEM F692)

See Chemistry B.S. (p. 176) and M.S. (p. 266) programs.

See Environmental Chemistry (p. 290).

Biological Sciences

College of Natural Science and Mathematics
Department of Biology and Wildlife
907-474-7671
M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

UAF biological sciences graduate students have extraordinary opportunities to conduct independent biological research in controlled-experiment or field settings, taking advantage of Arctic, alpine and boreal environments near campus or at remote locations.

The department has close connections with the National Science Foundation taiga Long Term Ecological Research site, located about 20 miles from campus. Our students also have access to the tundra LTER site at Toolik Lake, where the UAF Institute of Arctic Biology runs a field station.

Facilities available to graduate students on the Fairbanks campus include small mammal colonies, the Large Animal Research Station, both electron and light microscope laboratories, an imaging laboratory and a greenhouse facility. Students and faculty work on systematic collections in the UA Museum of the North using a variety of approaches from traditional morphology to molecular biology.

The program has strong research emphases in Arctic plant ecophysiology, plant-animal coevolution, insect ecology (terrestrial and aquatic), bird and mammal physiological ecology, vertebrate population dynamics, biology of seabirds, molecular evolution and systematics, pollution ecology, wetland ecology, population genetics, ungulate biology and wildlife management.

Advanced degree recipients gain significant teaching experience conducting labs, and a few take primary responsibility for instruction in a course at the undergraduate level. Our graduates have pursued careers in education at the university, community college and secondary levels. Many find professional positions with state and federal resource agencies, with whom the department faculty maintain close contact.

The Department of Biology and Wildlife has approximately 100 graduate students. The atmosphere is informal and students and faculty interact frequently, not only in small-enrollment classes, but also on field trips and in community and social settings.

Research assistantships are available on a competitive basis. Teaching assistantships in department courses provide excellent experience. Competitive fellowships are available through the UAF Graduate School. Applicants interested in graduate assistantships should contact the department for assistantship application forms.

Degrees

• M.S., Biological Sciences (p. 265)
• Ph.D., Biological Sciences (p. 265)

M.S., Biological Sciences

• Complete the admission process including the following:
  a. Submit scores from both the GRE General Test (required) and the GRE Subject Test in Biology (highly recommended).
  b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 254)</td>
</tr>
<tr>
<td></td>
<td>Master’s (with Thesis) Degree Requirements</td>
<td>Complete the master’s degree requirements. (p. 257)</td>
</tr>
<tr>
<td></td>
<td>Complete and pass the departmental written and oral master’s comprehensive examination</td>
<td></td>
</tr>
</tbody>
</table>

Ph.D., Biological Sciences

Complete the admission process including the following:

1. Submit scores from both the GRE General Test (required) and the GRE Subject Test in Biology (required for applicants holding only a bachelor’s degree; highly recommended for applicants who have already earned a master’s degree).
2. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

Optional Concentration: Wildlife Biology and Conservation

Minimum Requirements for Degree: 18 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 254)</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Degree Requirements</td>
<td>Complete the Ph.D. degree requirements. (p. 258)</td>
</tr>
<tr>
<td></td>
<td>If entering with only a bachelor’s degree, complete and pass the departmental written and oral Ph.D. qualifying examination</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete and pass a written and oral comprehensive examination by the graduate advisory committee</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In this program or in previous postbaccalaureate programs, complete course work at least equivalent to that required for the M.S. degree</td>
<td></td>
</tr>
</tbody>
</table>

For optional concentration see Wildlife Biology and Conservation (p. 315).

Business Administration

School of Management
907-474-4622
http://www.uaf.edu/som/degrees/graduate/mba/

MBA Degree

Minimum Requirements for Degree: 30 credits

The School of Management offers professional education applicable to the fields of management, finance, human resource management, international business, marketing and travel industry management to individuals interested in entering industry or government.

The program prepares graduates to meet the complex problems of the technical, economic and social environment and to enable them
to provide imaginative and responsible leadership to industry and government.

The UAF program recognizes that competence in the practice of management necessitates education with both breadth and depth. The graduate program is accredited by the Association to Advance Collegiate Schools of Business.

All applications will be reviewed to determine if applicant has the required body of knowledge to begin MBA courses. Those deficient may be required to complete prerequisite modules prior to admission or prior to enrolling in specific courses.

**Degree**

- MBA, Business Administration (p. 266)

**MBA, Business Administration**

- Complete the admission process including the following:
  
  a. Applications will be reviewed on a continuous basis
  
  b. Students with a graduate degree from an accredited institution may be admitted without taking the GMAT or GRE exam.
  
  c. UAF B.B.A. graduates with an overall GPA of 3.25 or above may be admitted without taking the GMAT or GRE exam. Those with GPA between 3.25 and 2.75 must submit results of the Watson-Glaser Critical Thinking exam for review. Those with GPA below 2.75 must submit results from the GMAT or GRE for review.
  
  d. Non-UAF applicants with a bachelor’s degree in business from an AACSB-accredited institution and an overall GPA of 3.25 or above may be admitted without taking the GMAT or GRE. Those with GPA between 3.25 and 2.75 must submit results of the Watson-Glaser Critical Thinking exam for review. Those with GPA below 2.75 must submit results from the GMAT or GRE for review.
  
  e. Applicants with non-business degrees and GPA from 4.00 to 2.75 must submit results of the Watson-Glaser Critical Thinking exam for review. Those with GPA below 2.75 must submit results from the GMAT or GRE for review.

**Concentrations: General Management, STEM**

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Master’s Degree Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>MBA Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td>MBA F617</td>
<td>Organizational Theory for Managers</td>
<td>3</td>
</tr>
<tr>
<td>MBA F643</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>MBA F675</td>
<td>Quantitative Methods for Managers</td>
<td>3</td>
</tr>
<tr>
<td>MBA F680</td>
<td>Financial Markets and Strategy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete the following capstone course:</td>
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</tr>
<tr>
<td>MBA F690</td>
<td>Corporate Strategy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one of the following concentrations:</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>General Management</td>
<td></td>
</tr>
</tbody>
</table>

**STEM**

1. Complete the following MBA core courses after any required modules are completed.

2. Both concentrations may be earned for degree; however, courses used in one concentration may not be used to meet requirements in the other concentration.

Students who earn grades of two Cs, one D, or one F in courses that are part of their MBA program will no longer be in good standing in the MBA program even if their cumulative GPA remains at or above 3.0. MBA students who are not in good standing will be subject to review and may be dismissed by the MBA committee. Students may not use more than two F600-level courses with C grades on their Advancement to Candidacy application. An A or B grade must be earned in F400-level courses.

Students with no prior course work in business subjects may be required to complete up to seven self-study modules prior to beginning courses. Contact the SOM MBA program for more information. These are not UAF courses and will not count toward the 30 required program credits.

**Concentrations**

**STEM**

This concentration may require some courses to be taken in residence.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students will take three graduate-level courses in their approved STEM field. These courses must be approved by both a faculty member in their chosen STEM program and the MBA advisor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete two approved SOM electives at the F400 or F600 level.</td>
<td>6</td>
</tr>
</tbody>
</table>

**GENERAL MANAGEMENT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete three of the following:</td>
<td></td>
</tr>
<tr>
<td>MBA F605</td>
<td>Contemporary Topics in Accounting</td>
<td>9</td>
</tr>
<tr>
<td>MBA F607</td>
<td>Human Resources Management</td>
<td></td>
</tr>
<tr>
<td>MBA F624</td>
<td>Controllership</td>
<td></td>
</tr>
<tr>
<td>MBA F627</td>
<td>Business Law and Ethics</td>
<td></td>
</tr>
<tr>
<td>MBA F632</td>
<td>Project Management</td>
<td></td>
</tr>
<tr>
<td>MBA F642</td>
<td>Economics of Environmental and Business Sustainability</td>
<td></td>
</tr>
<tr>
<td>MBA F665</td>
<td>Strategic Collaboration</td>
<td></td>
</tr>
<tr>
<td>MBA F673</td>
<td>Innovation Management</td>
<td></td>
</tr>
<tr>
<td>MBA F674</td>
<td>New Venture Development</td>
<td></td>
</tr>
<tr>
<td>MBA F682</td>
<td>Financial Statement Analysis</td>
<td></td>
</tr>
<tr>
<td>MBA F683</td>
<td>Advanced Topics in Marketing</td>
<td></td>
</tr>
<tr>
<td>MBA F691</td>
<td>Advanced Topics in Business</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete two approved SOM electives at the F400 or F600 level.</td>
<td>6</td>
</tr>
</tbody>
</table>

**Chemistry**

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
M.S. Degree
Minimum Requirements for Degrees: 30 credits

Graduates in chemistry qualify for employment in many fields as teachers of chemistry, supervisors in industry, technical sales personnel; research chemists in federal, state, municipal, academic or industrial laboratories; in pre-medicine; and as laboratory technicians. The rapid introduction of chemical techniques in all branches of commerce and the creation of many synthetic products have caused substantial growth in the profession. In addition to the traditional employment opportunities in chemistry, well-qualified graduates find positions in the fields of environmental sciences, oceanography, biochemistry, neuroscience, and related interdisciplinary fields. Many recipients of chemistry master’s degrees continue their education to obtain Ph.D. degrees at UAF or other universities. The M.S. program also has concentrations in the departmental focal areas of biochemistry and neuroscience and environmental chemistry. The department also offers Ph.D. degrees in each of these areas. See the biochemistry and neuroscience (p. 264) and environmental chemistry (p. 290) Ph.D. programs.

The department offers well-equipped laboratories housing instrumentation for nuclear magnetic resonance spectrometry, infrared, ultraviolet/visible and atomic absorption spectrophotometry, mass spectrometry, gas chromatography, amino acid analysis and HPLC. Additional equipment for gas chromatography/mass spectrometry, X-ray diffractometry, electron microscopy and liquid scintillating counters is available in cooperation with other UAF departments and institutes.

Degrees
- M.S., Chemistry (p. 267)

M.S. Degree
- Complete the following admission requirements:
  a. Submit GRE General Test scores.
  b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

M.S. Degree — Biochemistry and Neuroscience Concentration
- Complete the following admission requirements:
  a. Submit GRE General Test scores.
  b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

M.S. Degree — Environmental Chemistry concentration
- Complete the following admission requirements:
  a. Submit GRE General Test scores.
  b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master's degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete a research-based thesis.</td>
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<tr>
<td></td>
<td>Complete at least one semester of assisting in an undergraduate chemistry laboratory.</td>
<td></td>
</tr>
</tbody>
</table>

Optional Concentrations: Biochemistry and Neuroscience, Environmental Chemistry

M.S. DEGREE — BIOCHEMISTRY AND NEUROSCIENCE CONCENTRATION

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td>Complete the master's degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete three from the following:</td>
<td>9</td>
</tr>
<tr>
<td>CHEM F654</td>
<td>Protein Structure and Function</td>
<td></td>
</tr>
<tr>
<td>CHEM F657</td>
<td>Molecular Foundations of Gene Expression</td>
<td></td>
</tr>
<tr>
<td>CHEM F674</td>
<td>Membrane Biochemistry and Biophysics</td>
<td></td>
</tr>
<tr>
<td>CHEM F670</td>
<td>Cellular and Molecular Neuroscience</td>
<td></td>
</tr>
<tr>
<td>CHEM F675</td>
<td>Cellular Signaling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete a research thesis.</td>
<td></td>
</tr>
</tbody>
</table>

M.S. DEGREE — ENVIRONMENTAL CHEMISTRY CONCENTRATION

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master's degree requirements. (p. 257)</td>
<td></td>
</tr>
</tbody>
</table>
The civil engineering program at UAF began in 1922, had its first graduate in 1931 and since has graduated more than 800 men and women. Many of these graduates work in Alaska’s cities, towns and villages in a wide range of responsible positions. More than 60 percent of Alaska’s professional engineers practice in civil engineering. The UAF civil engineering program has been accredited since 1940 by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. All engineering programs in the department give special attention to problems of northern regions.

In addition to general civil engineering courses, specialties are available in Arctic, transportation, geotechnical, structures, water resources, hydrology and environmental studies. Many courses emphasize principles of analysis, planning and engineering design in northern regions.

A master’s degree program can include courses in environmental engineering (ENVE), engineering management (ESM) and other areas. An advanced degree in water and environmental science, administered within the civil engineering department, is available.

### Degrees
- M.S., Civil Engineering (p. 268)

#### M.S., Civil Engineering

- Complete the following admission requirements:
  - Complete a bachelor’s degree in engineering or natural sciences.\(^1\)
  - Submit GRE scores.
  - International students must complete the TOEFL with a score of 575 or better.

\(^1\) If applying with a non-engineering degree, submit a graduate study plan, including required deficiency courses, to be approved by a committee.

### DEFICIENCY REQUIREMENTS \(^2\)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Two approved science courses</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Three F200-level or above engineering courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four F400-level CE courses (^3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^2\) If taken before, these courses can be credited as deficiency courses as approved by the CEE department chair.

\(^3\) Two must be design classes in different fields of civil engineering.

### Concentrations: Arctic Engineering, Environmental Engineering, Engineering Design and Construction, Geotechnical Engineering, Structural Engineering, Transportation Engineering, Water Resources Engineering

### Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General University Requirements</td>
<td></td>
<td></td>
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<tr>
<td>Complete the general university requirements. (p. 254)</td>
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<td></td>
</tr>
<tr>
<td>Master’s Degree Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete a thesis or project</td>
<td>3-9</td>
<td></td>
</tr>
<tr>
<td>Complete comprehensive exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete one from the following concentrations</td>
<td>21-27</td>
<td></td>
</tr>
</tbody>
</table>
Arctic Engineering
Environmental Engineering
Engineering Design and Construction
Geotechnical Engineering
Structural Engineering
Transportation Engineering
Water Resources Engineering

CONCENTRATIONS

ARCTIC ENGINEERING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the following:</td>
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</tr>
<tr>
<td>CE F603</td>
<td>Arctic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE F624</td>
<td>Introduction to Permafrost Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE F682</td>
<td>Ice Engineering</td>
<td>3</td>
</tr>
<tr>
<td>or GEOS F615</td>
<td>Sea Ice</td>
<td></td>
</tr>
<tr>
<td>CE F683</td>
<td>Arctic Hydrology and Hydraulic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME F685</td>
<td>Arctic Heat and Mass Transfer</td>
<td>3</td>
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<tr>
<td>or ME F642</td>
<td>Advanced Heat Transfer</td>
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<tr>
<td></td>
<td>Approved electives (6 credits for thesis; 12 credits for project)</td>
<td>6-12</td>
</tr>
</tbody>
</table>

1 Recommended electives include: CE F422, CE F601, CE F625, CE F628, CE F635, CE F684, CE F685, MATH F460 and MATH F615.

ENVIRONMENTAL ENGINEERING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td>CE F601</td>
<td>Engineering Research Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F641</td>
<td>Aquatic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM F605</td>
<td>Aquatic Chemistry</td>
<td></td>
</tr>
<tr>
<td>ENVE F645</td>
<td>Unit Processes: Chemical and Physical</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F647</td>
<td>Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Approved electives (9 credits for thesis; 15 credits for project)</td>
<td>9-15</td>
</tr>
</tbody>
</table>

1 Recommended electives include: BIOL F557, CE F603, CE F663, CE F684, CHEM F609, CHEM F631, CHEM F655, ENVE F642, ENVE F643, ENVE F644, ENVE F646, ENVE F649, ENVE F652 and ENVE F658.

ENGINEERING DESIGN AND CONSTRUCTION

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the following:</td>
<td></td>
</tr>
<tr>
<td>Personnel, leadership, business communications, marketing electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Design and construction management electives</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Accounting, finance, economics electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Design and construction technical electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Project only</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete additional approved elective</td>
<td></td>
</tr>
</tbody>
</table>

1 Recommended electives include: CE F601, CE F659A, ESM F601, MBA F607 and MBA F617.

2 Recommended electives include: CE F620, CE F652C, CE F660A, ESM F608, ESM F609 and MBA F627.
3 Recommended electives include: ESM F605.
4 Recommended electives include: CE F451.
5 Recommended electives include: CE F603 and ENVE F644.

GEOTECHNICAL ENGINEERING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete 15 credits from the following:</td>
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</tr>
<tr>
<td>CE F605</td>
<td>Pavement Design</td>
<td>15</td>
</tr>
<tr>
<td>CE F622</td>
<td>Foundations and Retaining Structures</td>
<td></td>
</tr>
<tr>
<td>CE F624</td>
<td>Introduction to Permafrost Engineering</td>
<td></td>
</tr>
<tr>
<td>CE F625</td>
<td>Soil Stabilization and Embankment Design</td>
<td></td>
</tr>
<tr>
<td>CE F627</td>
<td>Geotechnical Earthquake Engineering</td>
<td></td>
</tr>
<tr>
<td>CE F628</td>
<td>Unsaturated Soils Mechanics</td>
<td></td>
</tr>
<tr>
<td>CE F633</td>
<td>Theory of Elastic Stability</td>
<td></td>
</tr>
<tr>
<td>CE F635</td>
<td>Numerical Methods for Geomechanics and Soil-Structure Interaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional approved electives (6 credits for thesis; 12 credits for project)</td>
<td>6-12</td>
</tr>
</tbody>
</table>

1 Recommended electives include: CE F422, CE F601, CE F603, CE F628, CE F637, GE F440 and ME F601.

STRUCTURAL ENGINEERING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Complete 15 credits from the following:</td>
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</tr>
<tr>
<td>CE F601</td>
<td>Engineering Research Communication</td>
<td>15</td>
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<tr>
<td>CE F622</td>
<td>Foundations and Retaining Structures</td>
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</tr>
<tr>
<td>CE F630</td>
<td>Advanced Structural Mechanics</td>
<td></td>
</tr>
<tr>
<td>CE F633</td>
<td>Theory of Elastic Stability</td>
<td></td>
</tr>
<tr>
<td>CE F634</td>
<td>Structural Dynamics</td>
<td></td>
</tr>
<tr>
<td>CE F635</td>
<td>Numerical Methods for Geomechanics and Soil-Structure Interaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional approved electives (6 credits for thesis; 12 credits for project)</td>
<td>6-12</td>
</tr>
</tbody>
</table>

1 Recommended electives include: CE F631, CE F637, CE F640, CE F646 and CE F650.

TRANSPORTATION ENGINEERING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the following:</td>
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</tr>
<tr>
<td>Approved engineering electives (9 credits for thesis; 15 credits for project)</td>
<td>9-15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional approved electives</td>
<td></td>
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</tbody>
</table>

1 Recommended engineering electives include: CE F601, CE F603, CE F605, CE F624, CE F682, ESM F621, ESM F622 and ME F631.
2 At least 3 credits must be in advanced mathematics or statistical methods. Recommended electives include: MATH F408, MATH F661, STAT F402, STAT F461, STAT F602, STAT F605 and STAT F611.
## WATER RESOURCES ENGINEERING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE F661</td>
<td>Advanced Water Resources Engineering</td>
<td>12</td>
</tr>
<tr>
<td>CE F662</td>
<td>Open Channel and River Engineering</td>
<td></td>
</tr>
<tr>
<td>CE F663</td>
<td>Groundwater Dynamics</td>
<td></td>
</tr>
<tr>
<td>CE F664</td>
<td>Sediment Transport</td>
<td></td>
</tr>
<tr>
<td>CE F683</td>
<td>Arctic Hydrology and Hydraulic Engineering</td>
<td></td>
</tr>
</tbody>
</table>

Additional approved electives (9 credits for thesis; 15 credits for project)  

1 Recommended electives include: CE F445, CE F601, CE F603, CE F665, GEOS F616, GEOS F617, GEOS F694, NRM F435 and NRM F670.

See Engineering (p. 288) for Ph.D. program.

See Water and Environmental Science (p. 313).

## Communication, Professional

**M.A. Degree**

Minimum Requirements for Degree: 30-34 credits

The communication program prepares students to handle the challenges of communicating effectively and ethically in a rapidly changing world characterized by diversity in gender, cultural background and belief.

The M.A. in professional communication provides advanced education for individuals in or pursuing communication related careers in public/nonprofit organizations, media organizations, health care organizations or in higher education. Students take courses that focus on organizational communication theory and practices.

The program is both theoretically and pragmatically oriented to prepare students for the professional workplace or for doctoral study in organizations.

**Degree**

- M.A., Communication, Professional (p. 270)

**M.A., Communication, Professional**

- Complete the following additional admission requirement:
  
  Submit academic writing sample.

**Minimum Requirements for Degree: 30-34 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
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</tr>
<tr>
<td></td>
<td>Master’s Degree Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
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</table>

## Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COJO F600</td>
<td>Introduction to Professional Communication</td>
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<tr>
<td>COJO F601</td>
<td>Communication Research Methodologies: Social Science</td>
<td>3</td>
</tr>
<tr>
<td>COJO F602</td>
<td>Communication Research Methodologies: Human Science</td>
<td>3</td>
</tr>
<tr>
<td>COJO F625</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>COJO F675</td>
<td>Training and Development Communication</td>
<td>3</td>
</tr>
<tr>
<td>COJO F680</td>
<td>Communication and Diversity in the Professional World</td>
<td>3</td>
</tr>
<tr>
<td>COJO F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>or COJO F698</td>
<td>Non-Thesis Research/Project</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Complete two from the following:  

- COJO F622 Interpersonal Interaction  
- COJO F631 Teambuilding  
- COJO F635 Organizational Culture and Communication  
- COJO F642 Health Communication  
- COJO F682 Seminar in Communication  

**Teaching assistants complete the following:**  

- COJO F661 Mentored Teaching in Communication  

1 Students may take F400- and F600-level courses in art, education, English, journalism, communication, marketing, business administration, and Arctic and Northern studies as well as graduate-level independent studies to fulfill 6 credits of the elective requirement, if approved by the student’s committee. Students will also be able to apply up to 6 credits of appropriate graduate-level course work from other universities in the elective area if approved by the student’s committee.

2 This 1-credit course may be taken up to four times.

Note: A maximum of 6 credits of approved F400-level courses may be included in the 30-34 credit requirement.

**Note:** The comprehensive examination is to be taken no later than the student’s fourth semester of work.

## Computer Science

**M.S. Degree**

Minimum Requirements for Degree: 30 credits

Computer science is the study of information handling and its application to the problems of the world. Computing is widely used in support of activities in science, engineering, business, law, medicine, education and the social sciences.

The M.S. degree follows the recommendations of the Association for Computing Machinery and the Institute for Electrical and Electronic Engineers. The program provides breadth and depth in course work and
culminates with a major unifying project. This program is available to
tudents who have completed a B.S. degree in computer science at most
stitutions. Students from other universities who have completed a
substantial portion of a bachelor’s level computer science program may
be admitted to the M.S. program. In such cases, undergraduate courses
may be required to remedy deficiencies.

For admission to the M.S. computer science program, the GRE general
and computer science subject exam is required.

**Degree**

- M.S., Computer Science (p. 271)

**M.S., Computer Science**

- Complete the UAF admission process including the following:
  1. Submit the UAF admission process including the following:
  2. For teaching assistantship consideration, foreign applicants
     whose native language is not English must submit a TOEFL
     score of at least 600.
  3. The department gives preference to applicants who also submit
     results of the Test of Spoken English.

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Master’s Degree Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Program Requirements</strong></td>
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</tr>
<tr>
<td>CS F600</td>
<td>Professional Software Development</td>
<td>4</td>
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<tr>
<td>CS F601</td>
<td>Algorithms, Architecture and Languages</td>
<td>4</td>
</tr>
<tr>
<td>CS F690</td>
<td>Graduate Seminar and Project</td>
<td>3</td>
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<tr>
<td>CS F691</td>
<td>Graduate Seminar and Project</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Approved electives</td>
<td>16</td>
</tr>
</tbody>
</table>

**Counseling**

School of Education
907-474-7341
http://www.uaf.edu/educ/graduate/

**M.Ed. Degree**

Minimum Requirements for Degree: 48-60 credits
School Counselor certification: 39 or 45 credits

The University of Alaska graduate counseling program prepares students
to become culturally responsive, effective practitioners through course
work and supervised internship experiences that emphasize an ecological
perspective. Students who complete the school counseling track, a 48-
credit-hour program, are eligible to be licensed as professional school
counselors in Alaska. Students who complete the clinical mental health
counseling track, a 60-credit-hour program, are eligible for licensure as
mental health counselors, with additional post-degree requirements.
Students who complete this track are eligible to work in community/
mental health agencies or as private clinicians once licensed.

Students who complete either program track through distance education
must complete COUN F634 and COUN F674 on the Fairbanks campus.
These courses are offered in alternating summers.

Candidates for all School of Education programs are required to have a
laptop computer and iPad. This computer may be of any type but must
enable candidates to meet School of Education requirements. Laptop and
iPad requirements and purchase information can be viewed on the UAF
School of Education website. If you have questions about how a laptop
or iPad purchase can fit into your current financial aid package, please
contact the UAF Financial Aid Office.

**Degree**

- M.Ed., Counseling (p. 271)

**Certification**

- School Counselor Certification Program (p. 272)

**M.Ed., Counseling**

Complete the following admission requirements:

1. Application deadline: March 1 for admission to the following fall
   semester, Oct. 1 for admission to the following spring semester.
2. Admission requires a bachelor’s degree in a human service area
   such as education, social work, psychology, human services, etc.
   Suitability of other degrees will be considered on an individual basis
   by counseling faculty.
3. Applicants must have a GPA of 3.0 or higher in their undergraduate
degree or the Graduate Record Exam.
4. Statement of academic goals addressing applicant’s motivations,
personal characteristics, experience, education and intentions for
earning the counseling degree.
5. Professional resume including education, work, volunteer or life
   experience relevant to the field of counseling.
6. Three letters of references from professional, academic or character
   sources.
7. All applicants will be required to interview with the counseling faculty
   as part of the admissions process.

Additional requirements:

1. Submit a disclosure statement upon admission to the program.
   Resubmit annually.
2. Submit a national-level criminal background check through the
   Federal Bureau of Investigation prior to seeing clients during COUN F634
3. Complete internship placements appropriate to the student’s
   declared area of interest.
4. Complete background check procedure required by the school or
   community internship placement. The procedure varies depending on
   placement.
5. Pass the Counselor Preparation Comprehensive Exam (CPCE).

**Note:** The FBI criminal background check process takes up to three
months.
Minimum Requirements for Degree: 48-60 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
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<td></td>
<td>Complete the general university requirements. (p. 254)</td>
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<td><strong>Master’s Degree Requirements</strong></td>
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<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
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<tr>
<td></td>
<td><strong>Program Requirements</strong></td>
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<tr>
<td></td>
<td>Complete the following:</td>
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<tr>
<td></td>
<td>COUN F601 Research in Counseling and Educational Settings</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F615 Foundations of Counseling</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F623 Counseling Theories and Applications I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F627 Developmental Interventions</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F628 Child and Adolescent Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F632 Career Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F630 Appraisal for Counselors</td>
<td>3</td>
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<tr>
<td></td>
<td>COUN F634 Practicum</td>
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</tr>
<tr>
<td></td>
<td>COUN F635 Field Practicum</td>
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<td></td>
<td>COUN F636 Internship I</td>
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<tr>
<td></td>
<td>COUN F647 Professional Ethics</td>
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</tr>
<tr>
<td></td>
<td>COUN F660 Multicultural Counseling</td>
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</tr>
<tr>
<td></td>
<td>COUN F674 Group Counseling</td>
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<tr>
<td></td>
<td>COUN F686 Internship II</td>
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<tr>
<td></td>
<td>COUN F698 Non-Thesis Research/Project</td>
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</tr>
<tr>
<td></td>
<td>or COUN F699 Thesis</td>
<td></td>
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</table>

**Concentrations**

Complete one from the following concentrations: 3-30

- School Counseling (elementary or secondary)
- K-12 School Counseling (elementary and secondary)
- Clinical Mental Health

**Concentrations**

**SCHOOL COUNSELING**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Complete the following:</td>
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<tr>
<td></td>
<td>COUN F646 School Counseling</td>
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**K-12 SCHOOL COUNSELING**

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<td>Complete the following:</td>
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<tr>
<td></td>
<td>COUN F646 School Counseling</td>
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</tr>
<tr>
<td></td>
<td>COUN F687 Internship III</td>
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<tr>
<td></td>
<td>COUN F688 Internship IV</td>
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**CLINICAL MENTAL HEALTH AND SCHOOL COUNSELING**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the following courses for both clinical mental health concentration and school counseling at one level (elementary or secondary)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COUN F629 Counseling Interventions for Adults</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F636 Internship I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F638 Adult Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F646 School Counseling</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F650 Multicultural Psychopathology</td>
<td>3</td>
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<tr>
<td></td>
<td>COUN F651 Counseling for Addictions</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F666 Family and Couples Counseling</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F686 Internship II</td>
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**CLINICAL MENTAL HEALTH AND K-12 SCHOOL COUNSELING**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the following courses for both clinical mental health concentration and K-12 school counseling (elementary and secondary)</td>
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</tr>
<tr>
<td></td>
<td>COUN F629 Counseling Interventions for Adults</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F636 Internship I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F638 Adult Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COUN F646 School Counseling</td>
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</tr>
<tr>
<td></td>
<td>COUN F650 Multicultural Psychopathology</td>
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<td>COUN F651 Counseling for Addictions</td>
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<tr>
<td></td>
<td>COUN F688 Internship IV</td>
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</table>

Additional fee required. Charges are added to fee statements each semester.

**Note:** Courses assigned by the student’s graduate committee to remove deficiencies will not be allowed as part of the graduate program.

School Counselor Certification Program

Complete the following admission requirements:

1. Application to the licensure only program follows the same admission requirements and procedures as for the M.Ed. in counseling
2. People who currently hold a master’s degree in education or one of several helping professions such as social work, psychology or human services (as approved by counseling faculty) may apply.

Additional requirements:

1. Submit a disclosure statement upon admission to the program. Resubmit annually.
3. Complete internship placements appropriate to the student’s declared area of interest.

4. Complete background check procedure required by the school or community internship placement. The procedure varies depending on placement.

Note: The FBI criminal background check process takes up to three months.

### Minimum Requirements for Degree: 39-45 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUN F623</td>
<td>Counseling Theories and Applications I</td>
<td>3</td>
</tr>
<tr>
<td>COUN F627</td>
<td>Developmental Interventions</td>
<td>3</td>
</tr>
<tr>
<td>COUN F628</td>
<td>Child and Adolescent Development</td>
<td>3</td>
</tr>
<tr>
<td>COUN F630</td>
<td>Appraisal for Counselors</td>
<td>3</td>
</tr>
<tr>
<td>COUN F632</td>
<td>Career Development</td>
<td>3</td>
</tr>
<tr>
<td>COUN F634</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>COUN F636</td>
<td>Internship I ³</td>
<td>3</td>
</tr>
<tr>
<td>COUN F646</td>
<td>School Counseling</td>
<td>3</td>
</tr>
<tr>
<td>COUN F647</td>
<td>Professional Ethics</td>
<td>3</td>
</tr>
<tr>
<td>COUN F660</td>
<td>Multicultural Counseling</td>
<td>3</td>
</tr>
<tr>
<td>COUN F674</td>
<td>Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>COUN F686</td>
<td>Internship II ³</td>
<td>3</td>
</tr>
</tbody>
</table>

³ Additional fee required. Charges are added to fee statements each semester.

### Cross-cultural Studies

**College of Liberal Arts**
Center for Cross-Cultural Studies
907-474-1902
http://www.uaf.edu/cxcs/

**M.A. Degree**

Minimum Requirements for Degree: 36 credits

The cross-cultural studies M.A. degree program emphasizes indigenous knowledge systems. The program is designed to provide graduate students from various fields of interest an opportunity to pursue in-depth study of the role and contributions of indigenous knowledge in the contemporary world. Students are expected to demonstrate the ability to work effectively with indigenous people in their studies.

**Degree**

- M.A., Cross-cultural Studies (p. 273)

### M.A., Cross-cultural Studies

Minimum Requirements for Degree: 36 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCS F604</td>
<td>Documenting Indigenous Knowledge</td>
<td>3</td>
</tr>
<tr>
<td>CCS F608</td>
<td>Indigenous Knowledge Systems</td>
<td>3</td>
</tr>
<tr>
<td>CCS F612</td>
<td>Traditional Ecological Knowledge</td>
<td>3</td>
</tr>
<tr>
<td>CCS/ED F690</td>
<td>Seminar in Cross-cultural Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

### Cross-Cultural Studies Specialization Courses

Select at least one from the following:

- ANS/ED F461 | Native Ways of Knowing | 3
- CCS/ED F610 | Education and Cultural Processes |
- RD F425 | Cultural Resource Issues |

### Electives

Select a minimum of 15 credits of approved electives to provide specialization depth:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F475</td>
<td>Alaska Native Social Change</td>
<td></td>
</tr>
<tr>
<td>CCS F602</td>
<td>Cultural and Intellectual Property Rights</td>
<td></td>
</tr>
<tr>
<td>CCS/ED F603</td>
<td>Field Study Research Methods</td>
<td></td>
</tr>
<tr>
<td>CCS/ED F611</td>
<td>Culture, Cognition and Knowledge Acquisition</td>
<td></td>
</tr>
<tr>
<td>CCS/ED F613</td>
<td>Alaska Standards for Culturally Responsive Schools</td>
<td></td>
</tr>
<tr>
<td>CCS F698</td>
<td>Non-thesis Research/Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 36

### Education

School of Education
907-474-7341
http://www.uaf.edu/soe/

**M.Ed. Degree and Postbaccalaureate Licensures**

Minimum Requirements for Art K-12 Licensure: 34 credits;
Elementary Postbaccalaureate Licensure: 39 credits;
Secondary Postbaccalaureate Licensure: 31-37 credits;
Special Education K-12 Postbaccalaureate Licensure Program Certificate of Completion: 24-27 credits; M.Ed.: 30-39 credits

The University of Alaska Fairbanks complies fully with the institutional reporting requirements mandated in Title II of the Higher Education Act Amendments of 1998. Please contact the School of Education for a copy of the complete report.

The UAF School of Education prepares students from across Alaska, as well as from other states and nations, to work in urban and rural Alaska and to work with multicultural and minority — especially Alaska Native — students. To fulfill our commitment to enhancing educational opportunities for the state’s rural and Native populations, faculty actively and knowledgeably utilize educational technology to deliver all School of Education programs to students in most areas of the state.

The School of Education offers programs in elementary education, secondary education, counseling, curriculum and instruction, and reading at both the postbaccalaureate and Master of Education degree levels. During their internships, candidates pay an additional fee. Charges are added to fee statements each semester.

The UAF School of Education is approved by the Alaska Department of Education and Early Development to recommend its students for Alaska licensure as elementary and secondary teachers and school counselors. Courses are available on-site and by distance delivery through the Kuskokwim, Bristol Bay, Interior Alaska, Chukchi, and Northwest campuses, as well as on the Fairbanks campus. Faculty research in cross-cultural studies, curriculum and instruction, language and literacy, and small rural schools support the mission of the School of Education.

Priority for enrollment in field-based courses is given to rural students formally admitted to degree and licensure programs. All inquiries should be addressed to one of the rural campuses or to the School of Education’s Student Services office.

Candidates for all School of Education programs are required to have a laptop computer and iPad. This computer may be of any type but enable candidates to meet School of Education requirements. Laptop and iPad requirements and purchase information can be viewed here (https://sites.google.com/a/alaska.edu/soe-technology/home/tech-requirements). If you have questions about how a laptop of iPad purchase can fit into your financial aid package, please contact the UAF Financial Aid Office.

LICENSURE INFORMATION

UAF education programs are approved by the Alaska State Board of Education standards and accredited by the National Council for the Accreditation of Teacher Education. For information about these programs contact one of the School of Education academic advisors.

The State of Alaska requires that all initial applicants for a teaching certificate provide evidence of passing Alaska qualifying scores on the Praxis I Academic Skills Assessment, including the Pre-Professional Skills Test and/or the Computer-Based Academic Skills Assessment. For additional information, visit the website of the State Department of Education and Early Development at http://www.eed.state.ak.us/TeacherCertification/.

Licensures

- Art K-12 Licensure Program toward M.Ed., Secondary Education (p. 274)
- Elementary (K-8) Postbaccalaureate Licensure Program (p. 275)
- Secondary Postbaccalaureate Licensure Program toward M.Ed., Secondary Education (p. 283)
- Special Education K-12 Postbaccalaureate Certificate of Completion (p. 285)

Degrees

- Master of Education in Counseling (p. 276)
- Master of Education in People, Place and Pedagogy (p. 278)
- Master of Education in Elementary Education (p. 276)
- Master of Education in Second Language Acquisition, Bilingual Education and Literacy (p. 280)
- Master of Education in Online Innovation and Design (p. 277)
- Master of Education in Secondary Education (p. 278)
- Master of Education in Special Education (p. 280)
- Interdisciplinary Ph.D. (p. 276)

Art K-12 Licensure Program toward M.Ed., Secondary Education

Offered on the Fairbanks campus only, this is an intensive, classroom-based K-12 art licensure program (34 credits) that prepares postbaccalaureate candidates for K-12 teaching positions. The program is specifically designed to prepare candidates to teach in multicultural settings in Alaska. The content will specifically identify and discuss current issues of art education and applying Alaska content/performance standards and frameworks as well as national standards for art education.

Candidates who apply as graduate applicants may simultaneously pursue teacher licensure and the M.Ed. secondary education degree. Significant additional course work will be required. (See requirements for M.Ed. secondary education (p. 278).)

At the end of the program, if students have successfully met all of the program requirements, they will be eligible to apply for an Alaska initial teaching license and will receive certificates of completion from UAF.

Candidates who enter the K-12 art licensure program are required to have use of/own a laptop computer before they begin their internships in the fall semester of their professional year.

For program options and professional field experiences information, please see information listed in the catalog for the secondary postbaccalaureate licensure program (p. 283).

Admission to the K-12 Art licensure program toward M.Ed. in secondary education includes meeting requirements of the UAF Graduate School and the School of Education. Candidates take five of the licensure courses at the F600 level.

For information on the application process, acceptance to the program and professional field experience, please refer to the secondary postbaccalaureate licensure program toward M.Ed. (p. 283) section.
Admission Process and Requirements

Applicants will follow the admission process and requirements listed in the catalog for the secondary postbaccalaureate licensure (p. 283) program, with the exception that applicants must have a bachelor’s degree in art from an accredited university or college. Applicants should be aware that additional content course work may be required, depending on content of degree. Additional course work, as determined by the appropriate departments, may mean a delay of program admission until requirements are fulfilled.

Minimum Requirements for Licensure: 34 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F452</td>
<td>Elementary Internship</td>
<td>3</td>
</tr>
<tr>
<td>ED F649</td>
<td>Elementary Art Methods</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F415</td>
<td>Foundations of Modern Educational Practice</td>
<td>3</td>
</tr>
<tr>
<td>or EDSC F205</td>
<td>Introduction to Secondary Education</td>
<td></td>
</tr>
<tr>
<td>EDSC F614</td>
<td>Learning, Development and Special Needs Instruction</td>
<td>3</td>
</tr>
<tr>
<td>or EDSE F622</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td></td>
</tr>
<tr>
<td>EDSC F636</td>
<td>Art Secondary Instruction and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F642</td>
<td>Technology Applications in Education I</td>
<td>1</td>
</tr>
<tr>
<td>EDSC F643</td>
<td>Technology Application in Education II</td>
<td>2</td>
</tr>
<tr>
<td>EDSC F657</td>
<td>Multicultural Education and School-community Relations</td>
<td>4</td>
</tr>
<tr>
<td>EDSC F658</td>
<td>Classroom Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F672</td>
<td>Secondary Teaching: School Internship II and Seminar</td>
<td>6-9</td>
</tr>
<tr>
<td>PSY F240</td>
<td>Psychology of Development</td>
<td>3</td>
</tr>
<tr>
<td>or PSY F245</td>
<td>Child Development</td>
<td></td>
</tr>
</tbody>
</table>

Elementary (K-8) Postbaccalaureate Licensure Program

This program is offered in Fairbanks and College of Rural and Community Development campus service areas. The elementary teacher postbaccalaureate program is an intensive, year-long program designed to provide students with the course work and internship experience necessary to meet the Alaska Teacher Standards and be eligible for licensure as an elementary teacher in Alaska. This classroom-based program is built upon the principle of partnership — a cooperative effort between interns, mentor teachers and university faculty partners.

Students begin the program in the summer with a 9-credit block of courses. Students who complete the undergraduate courses ED F110, ED F201, ED F330, ED F344 and EDSE F316 can use these to fulfill the summer requirements. During the academic year of the school district, all students complete two semesters of integrated university courses and internship.

Students must apply through the Office of the Registrar to graduate with a certificate of completion. At the end of the school year, if students have successfully met all of the program requirements, they will be eligible to apply for an Alaska Elementary License.
6. Some school districts may require interns to submit a physical examination form.

Minimum Requirements for Degree: 39 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summer Semester</strong> 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ED F624</td>
<td>Foundations of Education in Alaska: From Segregation to Standards 2</td>
<td>3</td>
</tr>
<tr>
<td>ED F625</td>
<td>Exceptional Learners and Child Development: Individual and Cultural Characteristics</td>
<td>3</td>
</tr>
<tr>
<td>ED F626</td>
<td>Teaching Reading, Writing and Language Arts</td>
<td>3</td>
</tr>
<tr>
<td><strong>Fall Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ED F411</td>
<td>Reading, Writing, Language Arts: Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F412</td>
<td>Integrated Social Studies and Language Arts: Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F466</td>
<td>Internship and Collaborative Student Teaching</td>
<td>3</td>
</tr>
<tr>
<td>ED F467</td>
<td>Classroom Management Communication and Collaboration I</td>
<td>2</td>
</tr>
<tr>
<td>ED F478/F678</td>
<td>Mathematics Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F479/F688</td>
<td>Science Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td><strong>Spring Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ED F414</td>
<td>Art, Music and Drama in Elementary Classrooms</td>
<td>3</td>
</tr>
<tr>
<td>ED F417</td>
<td>Physical and Health Education for Elementary Teachers</td>
<td>3</td>
</tr>
<tr>
<td>ED F468</td>
<td>Internship and Student Teaching</td>
<td>4</td>
</tr>
<tr>
<td>ED F469</td>
<td>Classroom Management Communication and Collaboration II</td>
<td>2</td>
</tr>
<tr>
<td>ED F476</td>
<td>Assessment of Literacy Development</td>
<td>1</td>
</tr>
</tbody>
</table>

1. Or complete ED F110, ED F201, ED F330, ED F344 and EDSE F316 prior to Aug. 1 of the internship year.
2. ED F624 meets the State of Alaska requirement for an approved multicultural/cross-cultural communication course.

Interdisciplinary Ph.D. Degree

Students wishing to further their education beyond a Master of Education degree may pursue an interdisciplinary Ph.D. degree. For more information, refer to the program section on interdisciplinary studies — Ph.D. degree (p. 298).

M.Ed., Counseling

Students may earn an M.Ed. degree in counseling with specialization in school or community counseling. Refer to the counseling program section (p. 271) for more information.

M.Ed., Elementary Education

Following completion of the yearlong UAF, postbaccalaureate elementary licensure program, students can pursue a M.Ed. degree in elementary education if they choose to do so. Fifteen specified graduate credits from the elementary licensure program can be used to meet the M.Ed. elementary education requirements. Courses are available through UAF by distance delivery and on the Fairbanks campus. Students can enroll in courses throughout the year. Licensure and the master’s degree requirements must be met within seven years of the beginning of the program.

Students who have completed undergraduate courses 110, 201, 330, 410 and EDSE F316 as part of their licensure program must complete additional graduate level course work to receive a master’s degree. Please contact the School of Education Student Services Office for additional information.

Admission and Application Information

It is recommended that students submit applications before Dec. 15 to provide time to complete prerequisites if necessary. Applications will be reviewed as submitted. Deadline is Feb. 15.

Admission includes meeting both UAF graduate admissions requirements and the School of Education admissions requirements.

GRADUATE SCHOOL REQUIREMENTS

Submit the following to the UAF Office of Admissions with a copy to the School of Education:

1. UAF graduate application and fee.
2. Official transcript of bachelor’s degree from an accredited institution and official transcripts from all institutions attended. A GPA of at least 3.0 (B grade) in undergraduate degree is required but students with less than a 3.0 may be considered for conditional admission in special circumstances.
3. Submit ACT, SAT or GRE scores.
4. Four to five-page essay indicating: reasons for wanting to become a teacher, assessment of academic and personal strengths relative to teaching, future plans and reasons for selecting the elementary postbaccalaureate program.
5. Letters of reference that address qualifications and potential as a teacher.

SCHOOL OF EDUCATION REQUIREMENTS

Submit the following information directly to the School of Education, using School of Education forms:

1. Alaska passing scores from the Praxis I or Praxis Core ASE exam in reading, writing and mathematics and score from Praxis II Elementary Content exam (test 5014 or 5018).
2. Completed academic analysis form to provide information on breadth and depth of prior course work relative to 10 Alaska Student Content Standard areas. If additional course work is required, it must be completed prior to beginning the program.
3. A writing sample, autobiography, evidence of successful paid or volunteer teaching/learning experience, evidence of successful cross-cultural experience.
4. Evidence of technology competence through successful completion of ED F237A, ED F237B, ED F237C and ED F237D or by successfully challenging each of the four components of the two-credit course.
5. Completed Alaska Department of Education and Early Development authorization packet (fingerprint cards and criminal background check necessary to work in schools). Packet is available from the School of Education.

6. Some school districts may require interns to submit a physical examination form.

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
<td>3</td>
</tr>
<tr>
<td>ED/CCS F603 or ED/CCS F604</td>
<td>Field Study Research Methods or Documenting Indigenous Knowledge</td>
<td>3</td>
</tr>
<tr>
<td>ED F624</td>
<td>Foundations of Education in Alaska: From Segregation to Standards</td>
<td>3</td>
</tr>
<tr>
<td>ED F625</td>
<td>Exceptional Learners and Child Development: Individual and Cultural Characteristics</td>
<td>3</td>
</tr>
<tr>
<td>ED F626</td>
<td>Teaching Reading, Writing and Language Arts</td>
<td>3</td>
</tr>
<tr>
<td>ED F678</td>
<td>Mathematics Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F688</td>
<td>Science Methods and Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F698 or ED F699</td>
<td>Non-thesis Research/Project or Thesis</td>
<td>6 or 3</td>
</tr>
</tbody>
</table>

Complete one graduate-level elective course approved by candidate’s graduate committee

**M.Ed., Online Innovation and Design**

The School of Education offers Master of Education degrees in counseling, special education and education. Students in the education major may earn a degree in these areas of specialization: people, place and pedagogy, second language acquisition, bilingual education and literacy, and online innovation and design. Students completing postbaccalaureate certification in elementary or secondary education may earn an M.Ed. in the respective area. For elementary education, secondary education, special education and counseling majors, refer to specific admission and program requirements listed in the respective sections.

**Admission Requirements**

Applications will be reviewed on March 1 and Oct. 1 for admission in the following semester. Faculty may vote to admit, not admit or admit with stipulations. Stipulations are specified when additional development in particular areas is needed before beginning a graduate degree program.

Minimum requirements for admission to the M.Ed. program are:

1. Bachelor’s degree and a 3.0 GPA.
2. One year of satisfactory teaching or administrative experience. Alternative experience may be accepted.

Complete the following application procedures for the UAF Graduate School:

1. Submit a graduate application form to the UAF Office of Admissions.
2. Submit scores on the general GRE if undergraduate GPA is below 3.0.
3. Submit a four- to five-page essay that describes your career goals and educational philosophy, and how those goals and philosophy are relevant to the School of Education’s mission and education graduate degree program.
4. Submit official transcripts.
5. Submit three letters of reference.
6. Submit a resume.

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
<td>3</td>
</tr>
<tr>
<td>ED F650</td>
<td>Current Topics in Educational Technology: Innovative Instruction and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>ED F654</td>
<td>Digital Citizenship, Internet Legal Issues, Digital Copyright and Fair Use</td>
<td>3</td>
</tr>
<tr>
<td>ED F659</td>
<td>Multimedia Tools for Educators</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one from the following:

**Cross-Cultural Foundations with Focus on Alaska Context Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED/CCS F610</td>
<td>Education and Cultural Processes</td>
<td>3</td>
</tr>
<tr>
<td>ED F611</td>
<td>Culture, Cognition and Knowledge Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>ED F616</td>
<td>Education and Socioeconomic Change</td>
<td>3</td>
</tr>
<tr>
<td>ED F619/CCS F618</td>
<td>Cultural Atlases as a Pedagogical Strategy</td>
<td>3</td>
</tr>
<tr>
<td>ED F620</td>
<td>Language, Literacy and Learning</td>
<td>3</td>
</tr>
<tr>
<td>ED/CCS F631</td>
<td>Culture, Community and the Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>ED F681</td>
<td>Place-based Education</td>
<td>3</td>
</tr>
<tr>
<td>ED F682</td>
<td>Rethinking Multicultural Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Options**

Complete one of the following options:

12

1. Thesis option
2. Project option
3. Comprehensive exam option
## Options

### THESIS OPTION

**Code** | **Title** | **Credits**
---|---|---
| One F600-level online innovation and design elective | 3
| ED/CCS F603 | Field Study Research Methods | 3
| or ED/CCS F604 | Documenting Indigenous Knowledge | 3
| ED F699 | Thesis | 6

### PROJECT OPTION

**Code** | **Title** | **Credits**
---|---|---
| One F600-level online innovation and design elective | 3
| ED/CCS F603 | Field Study Research Methods | 3
| or ED/CCS F604 | Documenting Indigenous Knowledge | 3
| ED F698 | Non-thesis Research/Project | 6

### COMPREHENSIVE EXAM OPTION

**Code** | **Title** | **Credits**
---|---|---
| Complete the following classes or comparable electives approved by the student’s graduate advisory committee.
| ED F653 | Instructional Design | 3
| ED F665 | Online Pedagogy | 3
| ED F676 | Supporting Learning in Diverse Systems | 3
| ED F677 | Digital Storytelling | 3
| Complete the comprehensive examination | | |

## M.Ed., People, Place and Pedagogy

The School of Education offers Master of Education degrees in counseling, special education and education. Students in the education major may earn a degree in these areas of specialization: people, place and pedagogy, second language acquisition, bilingual education and literacy, and online innovation and design. Students completing postbaccalaureate certification in elementary or secondary education may earn an M.Ed. in the respective area. For elementary education, secondary education, special education and counseling majors, refer to specific admission and program requirements listed in the respective sections.

## Admission Requirements

Applications will be reviewed on March 1 and Oct. 1 for admission in the following semester. Faculty may vote to admit, not admit or admit with stipulations. Stipulations are specified when additional development in particular areas is needed before beginning a graduate degree program.

**Minimum requirements for admission to the M.Ed. program are:**

1. Bachelor’s degree and a 3.0 GPA.
2. One year of satisfactory teaching or administrative experience. Alternative experience may be accepted.

**Complete the following application procedures for the UAF Graduate School:**

1. Submit a graduate application form to the UAF Office of Admissions.
2. Submit scores on the general GRE if undergraduate GPA is below 3.0.
3. Submit a four- to five-page essay that describes your career goals and educational philosophy, and how those goals and philosophy are relevant to the School of Education’s mission and education graduate degree program.
4. Submit official transcripts.
5. Submit three letters of reference.
6. Submit a resume.

## Minimum Requirements for Degree: 30 credits

**Code** | **Title** | **Credits**
---|---|---
| General University Requirements | Complete the general university requirements. (p. 254) | |
| Master of Education Degree Requirements | Complete the master of education degree requirements. (p. 259) | |
| Program Requirements | Complete the following: | |
| ED F601 | Introduction to Applied Social Science Research | 3
| or ED/CCS F603 | Field Study Research Methods | 3
| or ED/CCS F604 | Documenting Indigenous Knowledge | 3
| or ED F619/CCS F618 | Cultural Atlases as a Pedagogical Strategy | |
| ED F620 | Language, Literacy and Learning | 3
| ED F681 | Place-based Education | 3
| ED F682 | Rethinking Multicultural Education | 3
| ED F698 | Non-thesis Research/Project | 6
| or ED F699 | Thesis | |
**Complete three elective courses from the following:**

1. Students may choose from the provided elective courses, or complete other courses as approved by their graduate advisory committee.

## M.Ed., Secondary Education

Following the completion of the yearlong UAF secondary postbaccalaureate licensure program, students can pursue an M.Ed. degree in secondary education.

This program is designed to expand the preparation and instructional practices of middle and secondary educators and education professionals. Fifteen graduate-level credits from the UAF secondary postbaccalaureate licensure program may be applied toward the M.Ed. in secondary education program. Courses are available through UAF by distance delivery and on the Fairbanks campus. Master’s degree requirements must be met within seven years of beginning the program.

## Admission and Application Requirements
Admission to the graduate secondary postbaccalaureate licensure program and the M.Ed. in secondary education includes meeting requirements of the UAF Graduate School and of the School of Education.

Submit the following information to the UAF Office of the Registrar:

1. UAF graduate application and application fee.
2. Official transcript of bachelor’s degree from accredited institution. Applicants who have attended more than one university should include transcripts from all universities.
3. ACT or SAT or GRE scores.
4. Three current letters of reference that address qualifications and potential as a teacher.
5. A vitae/resume.
6. A personal statement of 1,200-1,500 words explaining your motivation for becoming a teacher. Describe how your academic qualifications and work experiences have prepared you for a career in teaching. Elaborate on your personal strengths, including your ability to work collaboratively with others. Describe your experiences with adolescents in instructional and supervisory capacities. Explain why you believe you can help young people of all cultures be successful in school.

Send the following scores directly to the School of Education:

1. Passing scores on an Alaska Department of Education and Early Development (EED) approved basic competency exam (http://education.alaska.gov/TeacherCertification/praxis.html).
2. Passing scores on the Praxis II test for each content area the applicant expects to teach. The scores must meet the score set by the State of Alaska (https://education.alaska.gov/TeacherCertification/). World language applicants may need an oral proficiency test as required by EED.
3. Secondary faculty will interview applicants as part of the admission process.

Additional Information:

Evidence of content competency in one of the UAF-approved secondary endorsement areas is necessary. Endorsement areas for teacher certification include biology, chemistry, Earth science, economics, English, French, German, history, mathematics, physics, political science and Spanish. Student can establish content competency by:

a) Holding a degree in an approved secondary endorsement area; or
b) Documenting content competency (e.g., transcript analysis by faculty). Additional course work may be required.

*Before student teaching, teacher candidates will need to complete the Alaska Department of Education and Early Development student teaching authorization. Fingerprint cards and criminal background check necessary to work in schools.

Minimum Requirements for Degree: 37 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>General University Requirements</td>
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<td></td>
</tr>
<tr>
<td>Master of Education Degree Requirements</td>
<td>Complete the Master of Education degree requirements. (p. 259)</td>
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<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
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<td>EDSC F407</td>
<td>Developing Literacy in the Content Areas</td>
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<td>EDSC F614</td>
<td>Learning, Development and Special Needs Instruction</td>
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<tr>
<td>or EDSE F622</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
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<td>EDSC F642</td>
<td>Technology Applications in Education I</td>
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<td>EDSC F643</td>
<td>Technology Application in Education II</td>
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<td>EDSC F658</td>
<td>Classroom Organization and Management</td>
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<td>EDSC F671</td>
<td>Secondary Teaching: School Internship I and Seminar</td>
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<td>EDSC F672</td>
<td>Secondary Teaching: School Internship II and Seminar</td>
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<td>EDSC F631</td>
<td>Secondary Instruction and Assessment in the Content Area</td>
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<td>EDSC F632</td>
<td>English/Language Arts Secondary Instruction and Assessment</td>
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<td>EDSC F633</td>
<td>Mathematics Secondary Instruction and Assessment</td>
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<td>Social Studies Secondary Instruction and Assessment</td>
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<td>Art Secondary Instruction and Assessment</td>
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<td>EDSC F637</td>
<td>World Language Secondary Instruction and Assessment</td>
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Thesis, Project or Comprehensive Exam Option
Complete the thesis, project or comprehensive exam option 6-9

Options

**THESIS OPTION**

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<td>ED/CCS F603</td>
<td>Field Study Research Methods</td>
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<td>or ED/CCS F604</td>
<td>Documenting Indigenous Knowledge</td>
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<td>ED F699</td>
<td>Thesis</td>
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**PROJECT OPTION**

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<td>ED/CCS F603</td>
<td>Field Study Research Methods</td>
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<tr>
<td>or ED/CCS F604</td>
<td>Documenting Indigenous Knowledge</td>
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<tr>
<td>ED F698</td>
<td>Non-thesis Research/Project</td>
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**COMPREHENSIVE EXAM OPTION**

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<td>6 graduate-level elective credits approved by candidate's</td>
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<tr>
<td></td>
<td>graduate committee</td>
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<td></td>
<td>Comprehensive examination</td>
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</tbody>
</table>

**M.Ed., Second Language Acquisition, Bilingual Education and Literacy**

The innovative master's degree program in second language acquisition, bilingual education and literacy provides innovative combined course work in literacy with second language acquisition. Candidates will receive an interdisciplinary education that will have immediate application for K-12 language arts, English, bilingual, English language learners (ELL) and content-area teachers, all of whom work in increasingly complex bilingual, multilingual and multimodal classroom environments. Candidates simultaneously earn a master's degree and are eligible to apply for an Alaskan K-12 statewide endorsement based on TESOL standards, Alaska teacher standards and Alaska cultural standards. The program may be completed in either Education (M.Ed.) or applied linguistics (M.A.). While program requirements are identical, the specific degree awarded (M.Ed. or M.A.) is determined by the advisor's department or school. Comprehensive exams and teacher-action research are required.

**Admission Requirements**

Applications will be reviewed on March 1 and Oct. 1 for admission in the following semester. Faculty may vote to admit, not admit or admit with stipulations. Stipulations are specified when additional development in particular areas is needed before beginning a graduate degree program.

**Minimum requirements for admission to the M.Ed. program are:**

1. Bachelor’s degree and a 3.0 GPA.
2. Current teaching certificate
3. One year of satisfactory teaching or administrative experience.
   Alternative experience may be accepted.

**Complete the following application procedures for the UAF Graduate School:**

1. Submit a graduate application form to the UAF Office of Admissions.
2. Submit scores on the general GRE if undergraduate GPA is below 3.0.
3. Submit a four- to five-page essay that describes your career goals and educational philosophy, and how those goals and philosophy are relevant to the School of Education’s mission and education graduate degree program.
4. Submit official transcripts.
5. Submit three letters of reference.
6. Submit a resume.

Candidates simultaneously earn a master’s degree and a K-12 statewide endorsement based on TESOL standards, Alaska teacher standards and Alaska cultural standards. The program may be completed in either Education (M.Ed.) or applied linguistics (M.A.). While program requirements are identical, the specific degree awarded (M.Ed. or M.A.) is determined by the advisor’s department or school. Comprehensive exams and teacher-action research are required.

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**Minimum Requirements for Degree: 30 credits**

<table>
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<tbody>
<tr>
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<td>General University Requirements</td>
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<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master of Education Degree Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the master of education degree requirements.</td>
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<tr>
<td></td>
<td>(p. 259)</td>
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<tr>
<td></td>
<td>Complete the admission requirements for the Master of Education degree.</td>
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<tr>
<td></td>
<td>Program Requirements</td>
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<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
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<tr>
<td>ED F670</td>
<td>Developing Literacy: ECE-12</td>
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<td>ED F673</td>
<td>Literacy in the Content Area</td>
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<td>ED F683</td>
<td>Instruction and Assessment in Literacy</td>
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<td>ED F698</td>
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<tr>
<td>or ED F699</td>
<td>Thesis</td>
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<tr>
<td>LING F600</td>
<td>Research Methods for Applied Linguistics</td>
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<td>LING F601</td>
<td>Principles of Linguistic Analysis</td>
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<td>LING F602</td>
<td>Second Language Acquisition</td>
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</tr>
<tr>
<td>LING F610</td>
<td>Theory and Methods of Second Language Teaching</td>
<td>3</td>
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**M.Ed., Special Education**

Prepares K-12 special educators at the graduate level with specific training in the areas of disabilities, assessment, interventions strategies, current law and the implementation of programs including development of legally defensible documents related to the federal Individuals with Disabilities Education Act.

Graduates will have mastery of the Council for Exceptional Children standards for special education teachers: learner development and individual learning differences, learning environments, curricular content knowledge, assessment, instructional planning and strategies, professional learning, and ethical practice and collaboration.

The program will provide individuals who already possess, or are eligible for, a current Alaska teaching certificate or a bachelor’s degree and the necessary prerequisites with specific training in the area of special education. The program prepares K-12 special education teachers who can effectively understand state and national education issues and respond appropriately. Special education candidates will progress through a series of developmentally sequenced field experiences for all ages, types and levels of abilities including collaborative opportunities.

An option is available for individuals who are already certified special education teachers or individuals who want the special education knowledge and master’s degree to perform professional duties that do not include being a special education classroom instructor. These individuals will not complete special education clinical practice, and no institutional recommendation for special education teacher certification will be issued.

The Master of Education in special education provides development in collaboration/consultation models and program development in multicultural settings. Completion of this program meets requirements for Alaska licensure as a K-12 special education teacher.
The School of Education offers Master of Education degrees in counseling, special education and education. Students in the education major may earn a degree in these areas of specialization: people, place and pedagogy, second language acquisition, bilingual education, and literacy, and online innovation and design. Students completing postbaccalaureate certification in elementary or secondary education may earn an M.Ed. in the respective area. For elementary education, secondary education, special education and counseling majors, refer to specific admission and program requirements listed in the respective sections.

Admission Requirements

Applications will be reviewed on March 1 and Oct. 1 for admission in the following semester. Faculty may vote to admit, not admit or admit with stipulations. Stipulations are specified when additional development in particular areas is needed before beginning a graduate degree program.

Minimum requirements for admission to the M.Ed. program are:

1. Bachelor’s degree and a 3.0 GPA.
2. One year of satisfactory teaching or administrative experience. Alternative experience may be accepted.

Complete the following application procedures for the UAF Graduate School:

1. Submit a graduate application form to the UAF Office of Admissions.
2. Submit scores on the general GRE if undergraduate GPA is below 3.0.
3. Submit a four- to five-page essay that describes your career goals and educational philosophy, and how those goals and philosophy are relevant to the School of Education’s mission and education graduate degree program.
4. Submit official transcripts.
5. Submit three letters of reference.
6. Submit a resume.

For Certified Teachers

Complete the following admission requirements:

- Current Alaska teaching certificate or equivalent course work towards an Alaska teaching certificate.

Prerequisite or corequisite: EDSE F482 or comparable transfer course from another institution.

For Initial Certification

Complete the following admission requirements:

1. Submit ACT, SAT or GRE scores.
2. Baccalaureate degree along with the following prerequisites:
   a. Documented recent experience (minimum of 12 hours) in an educational setting with children experiencing disabilities.
   b. UAF prerequisite or corequisite courses or comparable transfer courses. Courses may be completed prior to admission or during the program:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F245</td>
<td>Child Development</td>
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<tr>
<td>Select one from the following:</td>
<td></td>
<td>3</td>
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<tr>
<td>ED F201</td>
<td>Introduction to Education</td>
<td></td>
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</tbody>
</table>
EDSE F632 Special Education Law: Principles and Practices 3
EDSE F677 English Language Arts Assessment, Curriculum and Strategies for Special Learners 3
EDSE F680 Special Education Clinical Practice 2,3 3

Complete four from the following elective courses as approved by the candidate's graduate committee: 12

- ED F603 Field Study Research Methods or ED/CCS F604 Documenting Indigenous Knowledge
- EDSE F605 Early Childhood Special Education
- EDSE F624 Social/Emotional Development, Assessment and Intervention
- EDSE F633 Autism and Other Developmental Disabilities: Communication and Social Interventions
- EDSE F640 Culturally Responsive Collaboration: Working with Parents, Colleagues and Paraprofessionals
- EDSE F642 Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions
- EDSE F648 Understanding FASD: Diagnosis, Intervention and Strategies

Complete comprehensive examination 4

1. Complete the corequisite courses before or during admittance to the program; or have a comparable transfer course from another university.
2. Additional fee required. Charges are added to fee statements every semester.
3. Students pursuing a K-12 special education certificate must complete clinical practice in a public school setting.
4. Must be enrolled in 3 graduate credits the semester the comprehensive exam is completed.

Program Requirements for Initial Certification

Minimum Requirements for Degree: 39 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</table>
| General University Requirements
Complete the general university requirements. (p. 254)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ED F245</td>
<td>Child Development</td>
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<tr>
<td>EDSE F482</td>
<td>Inclusive Classrooms for All Children</td>
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</table>

Complete one of the following:
- ED F201 Introduction to Education
- ED F624 Foundations of Education in Alaska: From Segregation to Standards
- EDSC F205 Introduction to Secondary Education

EDSC F415 Foundations of Modern Educational Practice

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
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<td>EDSE F610</td>
<td>Assessment of Students with Exceptionalities</td>
<td>3</td>
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<tr>
<td>EDSE F612</td>
<td>Curriculum, Management and Strategies I: Low Incidence</td>
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<tr>
<td>EDSE F622</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
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<tr>
<td>EDSE F625</td>
<td>Teaching Mathematics to Special Learners</td>
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<tr>
<td>EDSE F632</td>
<td>Special Education Law: Principles and Practices</td>
<td>3</td>
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<tr>
<td>EDSE F677</td>
<td>English Language Arts Assessment, Curriculum and Strategies for Special Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F678</td>
<td>Special Education Clinical Practice: Initial</td>
<td>3</td>
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</table>

Complete four from the following elective courses as approved by the candidate's graduate committee: 12

- ED F603 Field Study Research Methods or ED/CCS F604 Documenting Indigenous Knowledge
- EDSE F605 Early Childhood Special Education
- EDSE F624 Social/Emotional Development, Assessment and Intervention
- EDSE F633 Autism and Other Developmental Disabilities: Communication and Social Interventions
- EDSE F640 Culturally Responsive Collaboration: Working with Parents, Colleagues and Paraprofessionals
- EDSE F642 Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions
- EDSE F648 Understanding FASD: Diagnosis, Intervention and Strategies

Complete comprehensive examination 4

1. Complete the corequisite course before or during admittance to the program; or have a comparable transfer course from another university.
2. Additional fee required. Charges are added to fee statements every semester.
3. Students pursuing a K-12 special education certificate must complete clinical practice in a public school setting.
4. Must be enrolled in 3 graduate credits the semester the comprehensive exam is completed.
### Program Requirements for M.Ed. Degree Without Certification

**Minimum Requirements for Degree: 36 credits**

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<td>Master of Education Degree Requirements</td>
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<td></td>
<td>Complete the Master of Education degree requirements. (p. 259)</td>
<td></td>
</tr>
<tr>
<td>EDSE F677</td>
<td>Understanding FASD: Diagnosis, Intervention and Strategies</td>
<td>3</td>
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<td>EDSE F625</td>
<td>Teaching Mathematics to Special Learners</td>
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<tr>
<td>EDSE F628</td>
<td>Include Classrooms for All Children</td>
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<td>EDSE F629</td>
<td>Social/Emotional Development, Assessment and Intervention</td>
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<td>EDSE F630</td>
<td>Curriculum, Management and Strategies I: Low Incidence</td>
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<td>EDSE F631</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
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<td>Special Education Law: Principles and Practices</td>
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<td>EDSE F633</td>
<td>Cultural Responsive Collaboration: Working with Parents, Colleagues and Paraprofessionals</td>
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<td>EDSE F634</td>
<td>Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions</td>
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<tr>
<td>EDSE F635</td>
<td>Field Study Research Methods</td>
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<td>EDSE F636</td>
<td>Early Childhood Special Education</td>
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<td>EDSC F657</td>
<td>English Language Arts Assessment, Curriculum and Strategies for Special Learners</td>
<td>3</td>
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</tbody>
</table>

Complete comprehensive examination ²

¹ Complete the corequisite course before or during admittance to the program; or have a comparable transfer course from another university.

² Must be enrolled in 3 graduate credits the semester the comprehensive exam is completed.

### Secondary Postbaccalaureate Licensure Program toward M.Ed., Secondary Education

This program is offered in Fairbanks and in areas served by the College of Rural and Community Development campuses and their service areas with the exception of the Aleutian-Pribilof Center.

This is an intensive, classroom-based secondary licensure program (31 credits) that prepares postbaccalaureate candidates for secondary (grades 7-12) teaching positions. The program is specifically designed to prepare candidates to teach in multicultural settings in Alaska. Content that addresses multicultural issues in general, and Alaska rural issues in particular, is contained specifically in EDSC F657 and is a fundamental component of the course work within the program. When funding is available, all secondary Fairbanks candidates participate in a rural practicum.

Candidates who apply as graduate applicants may simultaneously pursue teacher licensure and the M.Ed. secondary education degree. Significant additional course work will be required. (See requirements for M.Ed. secondary education (p. 278) option.)

Student outcomes for the program are based on the Standards for Alaska’s Teachers located at [http://www.eed.state.ak.us/standards/pdf/teacher.pdf](http://www.eed.state.ak.us/standards/pdf/teacher.pdf).

At the end of the program, if students have successfully met all of the program requirements, they will be eligible to apply for an Alaska initial teaching licenses and will receive certificates of completion from UAF.

Candidates who enter the secondary postbaccalaureate licensure program are required to have use of/own laptop computers before they begin their internships in the fall semester of their professional year. Candidates are expected to be proficient in Windows Office software, including, but not limited to, word processing, spreadsheets and presentation software.

### Program Options: Fast-Track, Two-Year or Teaching While Training

**FAST-TRACK OPTION**

The fast-track option is an intensive three-semester program that allows candidates (one year unpaid interns) to complete the secondary licensure program as full-time students in 12 months. Candidates take classes in summer, fall and spring. The academic-year-long internship is completed during the fall and spring semesters.

**TWO-YEAR OPTION**

The two-year option allows candidates (two-year unpaid interns) to complete the secondary postbaccalaureate licensure program as part-time students over a period of 18-24 months. The last semester of the program requires full-time placement at a public school site.

**TEACHING WHILE TRAINING OPTION**

The teaching while training option is for candidates (teacher interns) who have secured a teaching position with an Alaska school district. Generally, this option is available only to those candidates in areas of teacher shortage. Candidates complete the secondary postbaccalaureate licensure program over a period of 24 months.
Upon Acceptance to the Program

The School of Education has a systematic procedure for monitoring the progress of education students from admission through completion of their professional education program to determine if they should continue the program, be advanced to the secondary teaching internship and eventually be recommended for a teaching license. In assessing candidate progress in knowledge, skills and disposition, faculty will review grades, observations, faculty recommendations, demonstrated academic competence and recommendations from the appropriate professionals in the schools. Systematic approaches are used to assist education candidates who are making unsatisfactory progress in their programs, but still maintain potential for successful completion.

The following are specific criteria for entry to the secondary teaching internship:

- successful completion of summer program courses;
- approval of faculty to enter the secondary education internship;
- some school districts may require candidates to pass a general physical exam and require additional shot records;
- some school districts require completion of district substitute training which may include a fee, a fingerprint card and AST background check; and
- State of Alaska certificate of authorization, fingerprint cards and money order in the amount of $60 to the School of Education by June 1 (this fee is nonrefundable once submitted to the State of Alaska). The School of Education provides these materials, which will then be submitted to the State of Alaska for a criminal background check. Fees are subject to change. These materials will be provided to the student.

Professional Field Experiences

The secondary postbaccalaureate licensure program includes a comprehensive internship experience in an educational setting. Internship placements are arranged and supervised by university faculty in partnership with the principal and staff from the public school. University course work and classroom practice are closely linked and communication about performance in both the course work and classroom practice is shared among the partners. Internships follow the K-12 school year calendar and not the university academic year calendar.

Performance in the internship must meet stated competencies and individual outcomes. Performance evaluations determine the candidate’s progress toward meeting the State of Alaska Standards for Alaska’s Teacher and the International Society for Technology in Education’s National Education Technology Standards and Performance Indicators for All Teachers and performance guidelines of Specialty Performance Organizations.

It is expected that candidates will demonstrate appropriate professional characteristics with respect to their actions, attitudes and performance. Teacher candidates are required to adhere to the characteristics of professionalism as published in the Secondary Postbaccalaureate Licensure Handbook, and to abide by the State of Alaska Code of Ethics of the Education Profession. Unacceptable academic performance, an unprofessional attitude, unsatisfactory field reports, violation of professional ethics or other factors that may result in removal from the field experience and denial of the institutional recommendation for teacher certification.

Internship placements are made in partnership with participating school districts, which may request additional information and/or preparation from candidates according to the district’s established policies and practices. Because cooperating districts also determine the number of placements available for candidates, placement may become competitive if the number of applicants exceeds the number of spaces. Districts also reserve the right to refuse or terminate placements when candidates do not meet a minimum standard of performance. Thus, while the University will make every effort to identify appropriate field experiences, admission to the secondary postbaccalaureate licensure program does not guarantee an internship placement.

Admission and Application Requirements

Application recommended due dates are March 1 (summer or fall admission) and Oct. 15 (spring admission). Applications will be reviewed on an ongoing basis thereafter.

Admission includes meeting both UAF Graduate School and School of Education admission requirements.

GRADUATE SCHOOL REQUIREMENTS

Submit the following electronically (https://uaf.edu/admissions/apply) to the UAF Office of Admissions:

1. UAF graduate application and application fee.
2. Official transcript of bachelor’s degree from accredited institution. Applicants who have attended more than one university should include transcripts from all universities.
3. ACT or SAT or GRE scores.
4. Three current letters of reference that address qualifications and potential as a teacher.
5. A vitae/resume.
6. A personal statement of 1,200-1,500 words explaining your motivation for becoming a teacher leader. Describe how your academic qualifications and work experiences have prepared you for a career in teaching. Elaborate on your personal strengths, including your ability to work collaboratively with others. Describe your experiences with adolescents in instructional and supervisory capacities. Explain why you believe you can help young people of all cultures be successful in school.

SCHOOL OF EDUCATION REQUIREMENTS

Send the following scores directly to the School of Education:

2. Passing scores on the Praxis II test for each content area the applicant expects to teach. The scores must meet the score set by the State of Alaska (https://education.alaska.gov/TeacherCertification/). World language applicants may need an oral proficiency test as required by EED.
3. Secondary faculty will interview applicants as part of the admission process.

Additional Information:

Evidence of content competency in one of the secondary endorsement areas is necessary. Endorsement areas for teacher certification include biology, chemistry, Earth science, economics, English, French, German,
history, mathematics, physics, political science, and Spanish. Content competency can be established by:

a.) The applicant holds a degree in an approved secondary endorsement area or;

b.) Applicants who do not hold a degree in the academic content area that they expect to teach must have documentation of content competency (transcript analysis). Additional coursework may be required.

* Before student teaching teacher candidates will need to complete the Alaska Department of Education and Early Development student teaching authorization. Fingerprint cards and criminal background check are necessary to work in schools.

## Program Requirements

### Minimum Requirements for Degree: 31-37 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSC F407</td>
<td>Developing Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F415</td>
<td>Foundations of Modern Educational Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F614</td>
<td>Learning, Development and Special Needs Instruction or EDSE F622</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td></td>
</tr>
<tr>
<td>EDSC F642</td>
<td>Technology Applications in Education I</td>
<td>1</td>
</tr>
<tr>
<td>EDSC F643</td>
<td>Technology Application in Education II</td>
<td>2</td>
</tr>
<tr>
<td>EDSC F657</td>
<td>Multicultural Education and School-community Relations</td>
<td>4</td>
</tr>
<tr>
<td>EDSC F658</td>
<td>Classroom Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F671</td>
<td>Secondary Teaching: School Internship I and Seminar</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F672</td>
<td>Secondary Teaching: School Internship II and Seminar</td>
<td>6-9</td>
</tr>
</tbody>
</table>

Complete one of the following: 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSC F632</td>
<td>English/Language Arts Secondary Instruction and Assessment</td>
<td></td>
</tr>
<tr>
<td>EDSC F633</td>
<td>Mathematics Secondary Instruction and Assessment</td>
<td></td>
</tr>
<tr>
<td>EDSC F634</td>
<td>Science Secondary Instruction and Assessment</td>
<td></td>
</tr>
<tr>
<td>EDSC F635</td>
<td>Social Studies Secondary Instruction and Assessment</td>
<td></td>
</tr>
<tr>
<td>EDSC F636</td>
<td>Art Secondary Instruction and Assessment</td>
<td></td>
</tr>
<tr>
<td>EDSC F637</td>
<td>World Language Secondary Instruction and Assessment</td>
<td></td>
</tr>
</tbody>
</table>

1 Candidates must take the section or course that corresponds with their major teaching content areas.

---

### Special Education K-12 Postbaccalaureate Certificate of Completion

Prepares K-12 special educators at the graduate level with specific training in the areas of disabilities, assessment, interventions strategies, current law and the implementation of programs including development of legally defensible federal IDEA documents.

Graduates will have mastery of the Council for Exceptional Children standards for special education teachers: learner development and individual learning differences, learning environments, curricular content knowledge, assessment, instructional planning and strategies, professional learning and ethical practice and collaboration. The program will provide individuals who already possess, or are eligible for, a current Alaska teaching certificate or a bachelor’s degree and the necessary prerequisites, with specific training in the area of special education. The program prepares K-12 special education teachers who can effectively understand state and national education issues and respond appropriately. Special education candidates will progress through a series of developmentally sequenced field experiences for all ages, types and levels of abilities, including collaborative opportunities.

The program provides development in collaboration/consultation models and program development in multicultural settings. Completion of this program meets requirements for Alaska licensure as a K-12 special education teacher.

### Admission Requirements for Certified Teachers

Complete the following admission requirements:

- Admission requirements for the graduate program.
- Current teaching certificate or equivalent course work towards an Alaska teaching certificate.

Prerequisite or corequisite: EDSE F482 or comparable transfer course from another institution

### Admission Requirements for Initial Certification

1. Complete the following admission requirements:

   a. Admission requirements for the graduate program.

   b. Baccalaureate degree along with the following prerequisites:
      i. Documented recent experience (minimum 12 hours) in an educational setting with children experiencing disabilities.
      ii. Submit ACT, SAT or GRE scores.
      iii. UAF prerequisite or corequisite courses or comparable transfer courses. Courses may be completed prior to admission or during the program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F245</td>
<td>Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F482</td>
<td>Inclusive Classrooms for All Children</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F201</td>
<td>Introduction to Education</td>
<td></td>
</tr>
</tbody>
</table>
**Special Education K-12 Postbaccalaureate Certificate of Completion**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F624</td>
<td>Foundations of Education in Alaska: From Segregation to Standards</td>
<td></td>
</tr>
<tr>
<td>EDSC F205</td>
<td>Introduction to Secondary Education</td>
<td></td>
</tr>
<tr>
<td>ED F415</td>
<td>Foundations of Modern Educational Practice</td>
<td></td>
</tr>
</tbody>
</table>

iv An Alaska studies course approved by the Alaska Department of Education and Early Development. See [http://education.alaska.gov/teachercertification/](http://education.alaska.gov/teachercertification/).

v A multicultural education/cross-cultural communication course approved by the Alaska Department of Education and Early Development. See [http://education.alaska.gov/teachercertification/](http://education.alaska.gov/teachercertification/).

vi Passing scores on the Praxis Academic Skills for Educators text (or Praxis I) or another test acceptable to the Alaska Department of Education and Early Development before or during the first semester of classes. Current test numbers and minimum scores can be found at [https://education.alaska.gov/teachercertification/praxis](https://education.alaska.gov/teachercertification/praxis).

vii Passing scores on the appropriate Praxis II Exam(s) required before entering EDSE F678. Current test numbers and minimum scores can be found at [https://education.alaska.gov/teachercertification/pdf/content_area_exams.pdf](https://education.alaska.gov/teachercertification/pdf/content_area_exams.pdf). Candidates should consult the employing school district to determine preferred tests based on teaching assignment.

2. The following are recommended prior to admission or during the program. They are not required for the degree, but they are required for Alaska teacher certification:


   b. A multicultural education/cross-cultural communication course approved by the Alaska Department of Education and Early Development. See [http://education.alaska.gov/teachercertification/](http://education.alaska.gov/teachercertification/).

3. All prerequisite or corequisite courses must be completed with a minimum final grade of B.

### Program Requirements for Certified Teachers

**Minimum Requirements for Certification: 24 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| General University Requirements

Complete the general university requirements. (p. 254)

<table>
<thead>
<tr>
<th>Corequisite Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F245 Child Development</td>
</tr>
<tr>
<td>EDSE F482 Inclusive Classrooms for All Children</td>
</tr>
</tbody>
</table>

Complete one of the following:

<table>
<thead>
<tr>
<th>Program Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE F610 Assessment of Students with Exceptionalities</td>
</tr>
<tr>
<td>EDSE F612 Curriculum, Management and Strategies I: Low Incidence</td>
</tr>
<tr>
<td>EDSE F622 Curriculum, Management and Strategies II: High Incidence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE F625 Teaching Mathematics to Special Learners</td>
</tr>
<tr>
<td>EDSE F632 Special Education Law: Principles and Practices</td>
</tr>
<tr>
<td>EDSE F677 English Language Arts Assessment, Curriculum and Strategies for Special Learners</td>
</tr>
</tbody>
</table>

| EDSE F680 Special Education Clinical Practice | 3 |

1 Complete the corequisite course before or during admittance to the program; or have a comparable transfer course from another university.

2 Students pursuing a K-12 special education certificate must complete clinical practice in a public school setting.

3 Additional fee required. Charges are added to fee statements every semester.

---

### Program Requirements for Initial Certification

**Minimum Requirements for Certification: 27 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| General University Requirements

Complete the general university requirements. (p. 254)

<table>
<thead>
<tr>
<th>Corequisite Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F201 Introduction to Education</td>
</tr>
<tr>
<td>ED F245 Child Development</td>
</tr>
<tr>
<td>EDSE F482 Inclusive Classrooms for All Children</td>
</tr>
</tbody>
</table>

Complete one of the following:

<table>
<thead>
<tr>
<th>Program Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE F610 Assessment of Students with Exceptionalities</td>
</tr>
<tr>
<td>EDSE F612 Curriculum, Management and Strategies I: Low Incidence</td>
</tr>
</tbody>
</table>

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### Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE F625 Teaching Mathematics to Special Learners</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDSE F632 Special Education Law: Principles and Practices</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDSE F677 English Language Arts Assessment, Curriculum and Strategies for Special Learners</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

| EDSE F680 Special Education Clinical Practice | 3 |

---

1 Complete the corequisite course before or during admittance to the program; or have a comparable transfer course from another university.

2 Students pursuing a K-12 special education certificate must complete clinical practice in a public school setting.

3 Additional fee required. Charges are added to fee statements every semester.
EDSE F622  Curriculum, Management and Strategies II: High Incidence  3
EDSE F625  Teaching Mathematics to Special Learners  3
EDSE F632  Special Education Law: Principles and Practices  3
EDSE F677  English Language Arts Assessment, Curriculum and Strategies for Special Learners  3
EDSE F678  Special Education Clinical Practice: Initial  3
EDSE F680  Special Education Clinical Practice  3

Electives
Complete one of the following:  3
EDSE F605  Early Childhood Special Education
EDSE F624  Social/Emotional Development, Assessment and Intervention
EDSE F633  Autism and Other Developmental Disabilities: Communication and Social Interventions
EDSE F640  Culturally Responsive Collaboration: Working with Parents, Colleagues and Paraprofessionals
EDSE F642  Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions
EDSE F648  Understanding FASD: Diagnosis, Intervention and Strategies

1 Complete the corequisite courses before or during admittance to the program; or have a comparable transfer courses from another university.
2 Students pursuing a K-12 special education certificate must complete a clinical practice in a public school setting.
3 Additional fee required. Charges are added to fee statements every semester.

Note: Students who do not have a current Alaska teacher certificate must take 6 credits of clinical practice. Clinical practice courses are taken the last two semesters of the program. To enter the clinical practice, students must apply for authorization from the State of Alaska. This includes fingerprinting and a background check. Fingerprint clearance may take up to six months to complete. Submit the clinical practice application two semesters prior to the desired placement. Failure to comply with the requirement, falsification of information, or evidence of a criminal conviction that is named in the law or the Professional Teaching Practices Commission is considered an ethics violation. This will result in denied access to field placement in Alaska school districts. Authorization is required before clinical practice can begin.

M.S. Degree
Minimum Requirements for Degree: 32 credits

The M.S. degree includes three options: a written thesis and oral defense for students interested in research and development; a project; or a course-work-only option. UAF offers an engineering Ph.D. program for students with an approved curriculum. Capable students with undergraduate degrees in physics, mathematics or related sciences, as well as in various branches of engineering, may also be admitted for graduate study. A student with adequate background can usually complete M.S. requirements within two years and a Ph.D. in another three years.

Graduate degree programs in electrical and computer engineering are closely connected with faculty research activities. The M.S. degree offers opportunities for research, such as the use of acoustic, light and radio wave techniques for measuring fish in Alaska rivers to the geophysical properties of the aurora. Remote sensing for biomedical (animal tracking) and environmental (groundwater and air monitoring) applications is an important research area for Alaska. Electric power systems research includes issues related to isolated rural Alaska communities, analysis of larger interconnected generation, transmission and distribution systems serving major Alaska population centers, and the use of alternative energy systems.

Graduate students in electrical and computer engineering at UAF receive the highest quality contemporary education available at the graduate level and perform research appropriate to the technical needs of Alaska, the nation and the world.

Degrees
• M.S., Electrical Engineering (p. 287)

M.S., Electrical Engineering
• Complete the following admission requirement:
  a. Submit GRE scores.
• Complete one of the following admission requirements:
  a. Complete a bachelor’s degree in electrical engineering.
  b. Students with bachelor’s degrees in other fields should work out a program to address any background deficiencies with their graduate committee.

Minimum Requirements for Degree: 32 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master’s Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete one from the following options:</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Thesis Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Thesis Course Work</td>
<td></td>
</tr>
</tbody>
</table>

THESIS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EE F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
<tr>
<td></td>
<td>Additional credits</td>
<td>20-26</td>
</tr>
</tbody>
</table>

Note: At least 26 credits must be at the F600 level.

NON-THESIS PROJECT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE F698</td>
<td>Non-Thesis Research/Project</td>
<td>1-6</td>
</tr>
<tr>
<td></td>
<td>Additional credits</td>
<td>26-31</td>
</tr>
</tbody>
</table>

Note: At least 26 credits must be at the F600 level.

An oral project presentation and defense is required. The project will be archived in the UAF Rasmuson Library.

NON-THESIS COURSEWORK

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Additional credits</td>
<td>32</td>
</tr>
</tbody>
</table>

Note: At least 26 credits must be at the F600 level.

See Engineering (p. 288) for Ph.D. program.

Engineering

College of Engineering and Mines
907-474-7241
http://cem.uaf.edu/academics/programs/

Ph.D. Degree

Minimum Requirements for Degree: 36 credits

Engineers use knowledge of the mathematical and natural sciences to develop economical uses of materials and forces of nature for human benefit. The professional practice of engineering requires sophisticated skills, use of judgment and exercise of discretion. The basic education necessary for the professional practice of engineering is provided by the engineering bachelor and master’s degrees. Doctoral-level education requires independent research that generates fundamental advances in technology and discovers new knowledge for the benefit of society. Engineering Ph.D. degrees provide leadership in scientific research, academia and industrial research and development. The Ph.D. degree in engineering draws on the combined strength of the College of Engineering and Mines and offers opportunities for engineers at other UA campuses to participate.

Degree

• Ph.D., Engineering (p. 288)

With concentrations in:

• Arctic
• Civil
• Computer
• Electrical
• Engineering Management
• Environmental
• Geological
• Mechanical
• Mining and Petroleum

Ph.D., Engineering

Complete the following admissions requirements:

1. Complete either a B.S. or M.S. degree in engineering.
2. Complete a master's degree in engineering or a closely related field.
3. Submit GRE scores.

Concentrations: Arctic, Civil, Computer, Electrical, Engineering Management, Environmental, Geological, Mechanical, Mining and Petroleum

Minimum Requirements for Degree: 36 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph.D. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the Ph.D. degree requirements. (p. 258)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>As part of the Ph.D. degree requirements:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete at least 18 credits of course work beyond the M.S. degree.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete at least three full-time semesters of residency, which may include a summer semester.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete and pass a written and oral comprehensive examination.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete and submit a written thesis proposal for approval.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete a research program as arranged with the graduate advisory committee.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete a thesis that is a substantial contribution to the body of knowledge in engineering and pass an oral defense of thesis.</td>
<td></td>
</tr>
</tbody>
</table>

Residency is defined as living in the Fairbanks area, working with the student’s graduate advisor and graduate committee, while taking courses at UAF.

Minimum Requirements for Degrees: M.A.: 30-36 credits; M.F.A.: 45 credits; M.F.A./M.A.: 45 credits

The English department offers core courses in writing and literature, and upper-division courses in literature, linguistics, creative writing, technical writing and literary criticism. The department also offers a two-year M.A. degree in literature, a three-year M.F.A. degree in creative writing and an M.F.A./M.A. combined degree in creative writing and literature that can be completed in three years. Teaching assistantships are available for the three programs. The M.A. degree offers advanced study of literature and literary theory, as preparation for teaching or for entering a Ph.D. program. The M.F.A. degree is a terminal degree, culminating in the production of a publication-quality thesis manuscript of poetry, fiction, drama, or creative non-fiction. The M.F.A./M.A. is a combined degree designed for qualified individuals who wish to produce a publication-quality thesis manuscript of creative writing, but also would like to pursue in a systematic manner the study of literature and literary theory in preparation for college teaching or entering a Ph.D. program.

Degrees

- M.A., English (p. 289)
- M.F.A., Creative Writing (p. 289)
- M.F.A./M.A., Combined Degree, Creative Writing and Literature (p. 290)

M.A., English

Complete the following admission requirements:

- Submit GRE scores.
- Submit academic writing sample.

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master's Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master's degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pass a written comprehensive examination based on a standardized reading list</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Students may advance to candidacy when their advisory committee deems that they have made satisfactory progress toward completion of their degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pass an oral defense of the thesis.</td>
<td></td>
</tr>
<tr>
<td>Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL F601</td>
<td>Theory, Criticism and Methods</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F685</td>
<td>Teaching College Composition (or ENGL F600-level elective course)</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete two from the following:</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Note: Students may apply up to 3 credit hours of independent study toward the English M.A. degree requirements.

M.F.A., Creative Writing

- Complete the following admission requirements:
  - Submit GRE scores.
  - Submit creative writing sample.

Minimum Requirements for Degree: 45 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master's Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master's degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td>Program Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL F601</td>
<td>Studies in British Literature: Old and Middle English</td>
<td></td>
</tr>
<tr>
<td>ENGL F604</td>
<td>Studies in British Literature: Renaissance and 17th-Century</td>
<td></td>
</tr>
<tr>
<td>ENGL F606</td>
<td>Studies in British Literature: Restoration and 18th Century</td>
<td></td>
</tr>
<tr>
<td>ENGL F607</td>
<td>Studies in British Literature: 19th Century</td>
<td></td>
</tr>
<tr>
<td>Complete two from the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>ENGL F609</td>
<td>Studies in American Literature to 1865</td>
<td></td>
</tr>
<tr>
<td>ENGL F611</td>
<td>Studies in American Literature from 1865-1918</td>
<td></td>
</tr>
<tr>
<td>ENGL F612</td>
<td>Studies in American Literature after 1918</td>
<td></td>
</tr>
<tr>
<td>ENGL F620</td>
<td>Images of the North</td>
<td></td>
</tr>
<tr>
<td>Complete one of the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGL F608</td>
<td>Studies in British Literature After 1900</td>
<td></td>
</tr>
<tr>
<td>ENGL F614</td>
<td>Studies in Comparative Literature</td>
<td></td>
</tr>
<tr>
<td>ENGL F615</td>
<td>Contemporary Literature</td>
<td></td>
</tr>
<tr>
<td>Additional approved elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGL F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

1 The examination is to be taken in the student’s second year of work. The examination will be held on the Saturday ending the fourth full week of classes in the spring semester.
2 Students are required to take ENGL F601 in their first year of study.
3 Required if you are a teaching assistant or planning to teach.
4 To maximize breadth of study, M.A. students and their advisors will draft individualized courses of study with the following program requirements in mind. The advisor will direct students to courses covering the required areas, subject to particular exemptions based upon undergraduate course work. Exemptions and any subsequent revisions of the course of study must have the agreement of the advisor and department head. Plans can be revised to substitute an appropriate seminar for one of the courses.

Note: Students may apply up to 3 credit hours of independent study toward the English M.A. degree requirements.
Environmental Chemistry

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
http://www.uaf.edu/chem/

Ph.D. Degree

Minimum Requirements for Degree: 18 thesis credits

Environmental chemistry focuses on the chemical processes influencing the composition and chemical speciation of natural systems (air, water and soils), the chemical fate and mobility of contaminants in the environment, chemical processes that affect the toxicity and bioavailability of contaminants, and chemical aspects of contaminant remediation and pollution prevention. The common link is a focus on the underlying chemical structure, reactivity and mechanisms that dictate the extent and rates of environmentally important chemical reactions. Environmental chemistry is a challenging field, requiring core training in physical, analytical, organic and inorganic chemistry, and an understanding of how these disciplines can be applied to complex environmental systems. It also provides a quantitative and fundamental approach to understanding the processes that influence the quality of the environment.

The Department of Chemistry and Biochemistry offers B.S. and M.S. via concentrations under the chemistry degree. The program provides education and research opportunities focused on the molecular scale aspects of environmental science. The program defines three tracks to meet a wide range of student interest:

1. atmospheric chemistry,
2. aqueous/environmental geochemistry, and
3. environmental toxicology and contaminant fate.

Students may also design a custom focus area, subject to approval by their advisory committee.

Our faculty are involved in a wide range of projects from field studies of chemical transformation and transport, to laboratory and modeling studies of the basic mechanisms of environmental reactions, to the development of novel chemistry useful in contaminant remediation. The program is centered in the Reichardt Building on the Fairbanks campus that houses stat-of-the-art classrooms, laboratories and computer facilities to support education and research activities. Located in Interior Alaska, UAF is home to numerous research institutes and centers that focus on Arctic science and engineering and provide great opportunities for collaboration and cross-disciplinary studies focused on the chemistry of polar and sub-Arctic systems.

The Ph.D. program in environmental chemistry provides advanced training in the concepts and methods of molecular environmental sciences with the expectation that Ph.D. recipients will be acknowledged as experts in their particular topic of study. This is accomplished primarily through the Ph.D. dissertation, which is a body of independent research that presents new findings on forefront topics related to molecular processes in the environment. The Ph.D. in environmental chemistry prepares students for careers in academia or the public and private research sectors. Graduate students in the environmental chemistry program are typically supported through teaching and research assistantships or fellowships. Students interested in a M.S. degree

M.F.A./M.A. Combined Degree, Creative Writing and Literature

1. A student who wishes to be awarded an M.F.A./M.A. combined degree in creative writing and literature must be admitted to both programs;
2. Fulfill all general university requirements and master's degree requirements and all course requirements within both programs (double counting allowed);
3. Pass comprehensive examinations in both programs;
4. Complete a thesis required for an M.F.A. degree and
   a. a thesis required for an M.A. degree,
   b. OR a scholarly essay which from a critical and/or historical perspective supplements the M.F.A. thesis and which the advisory committee(s) must judge to be of publishable quality,
   c. OR a scholarly essay on a topic approved by the advisory committee(s) and likewise judged as publishable.
5. Pass an oral examination of materials submitted from 4 above.
6. Finish all requirements in order to be awarded the combined degree instead of the M.A. or M.F.A. separately (i.e., a student may not claim at any time more than one degree for the same work).

### ENGL F601
Theory, Criticism and Methods

### ENGL F671
Writers' Workshop

### ENGL F685
Teaching College Composition (or ENGL F600-level elective course)

### ENGL F699
Thesis

**Note:** A student may petition the Thesis Advisory Committee and the department chair to take up to 6 credit hours of independent study to be applied toward the English M.F.A. electives requirement.

**Note:** The English Department requires that a student receive an A or B grade for all F600-level courses that the student wishes to apply toward the master's degree programs.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F681</td>
<td>Forms of Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F682</td>
<td>Forms of Fiction</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F684</td>
<td>Forms of Nonfiction Prose</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F688</td>
<td>Writing for Film and Television</td>
<td>3</td>
</tr>
</tbody>
</table>
focusing on environmental chemical problems should see the M.S. Chemistry with concentration in Environmental Chemistry program.

**Degree**

- Ph.D., Environmental Chemistry (p. 291)

**Ph.D., Environmental Chemistry**

- Complete the following admission requirements
  
  a. Submit GRE General Test scores
  b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

**Minimum Requirements for Degree: 32 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph.D. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the Ph.D. degree requirements. (p. 258)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select three from the following:</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>CHEM F605 Aquatic Chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM F606 Atmospheric Chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM F631 Environmental Fate and Transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM F655 Environmental Toxicology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seminar Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM F691 Research Presentation Techniques</td>
<td>1</td>
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<tr>
<td></td>
<td>CHEM F692 Seminar</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Complete approved electives 1</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Complete a thesis</td>
<td>18</td>
</tr>
</tbody>
</table>

1. Approved electives are specified by the student's committee. The following tracks are defined as a guide. Within these tracks students will be expected to complete as part of the core and electives:
   i. Atmospheric Chemistry: CHEM F601, CHEM F605, CHEM F606 and CHEM F631
   ii. Aqueous/Environmental Geochemistry: CHEM F605, CHEM F606 or CHEM F631, GEOS F618 and CHEM F609/GEOS F633.
   iii. Environmental Toxicology and Contaminant Fate: CHEM F605 or CHEM F606, CHEM F631 and CHEM F655

A customized focus area may be developed based on an appropriate sequence of core and elective courses, subject to approval by the student's advisory committee.

- M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

Fisheries graduate students take classes and undertake research on a diverse set of fisheries-related topics. Program strengths include quantitative science, fisheries management and human dimensions, biology and ecology, and seafood technology. Students are typically based in Juneau, Fairbanks or Kodiak, but most courses are video-delivered to locations throughout Alaska.

Traditionally, the Juneau location emphasizes the marine environment; Fairbanks, the freshwater; and Kodiak, seafood science. However, students at each location are engaged in a wide variety of research topics. All locations have excellent laboratory facilities, access to pristine environments and healthy fisheries, and strong connections to state and federal agency scientists and managers as well as to participants in commercial, sport and subsistence fisheries.

Most students are supported as research assistants for some or all of their tenure. Agencies such as the National Atmospheric and Oceanic Administration, the U.S. Fish and Wildlife Service, and the Alaska Department of Fish and Game are collaborators on research projects and employ many of our graduates.

- Degrees

  - M.S., Fisheries (p. 291)
  - Ph.D., Fisheries (p. 292)

**M.S., Fisheries**

- Complete the following admission requirements:
  
  a. Prerequisites: calculus; elementary statistics; ichthyology, biology of fish or invertebrate zoology; and computer competency.
  b. Submit GRE scores.

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master's Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master's degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FISH F699 Thesis</td>
<td>6-12</td>
</tr>
<tr>
<td></td>
<td>STAT F401 Regression and Analysis of Variance</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Graduate seminars</td>
<td>2</td>
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<tr>
<td></td>
<td>Complete one from the following emphasis areas:</td>
<td>9-14</td>
</tr>
<tr>
<td></td>
<td>Fisheries Emphasis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seafood Science Emphasis</td>
<td></td>
</tr>
</tbody>
</table>

**Fisheries Emphasis**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete one from the following under each area:</td>
<td>9-11</td>
</tr>
<tr>
<td></td>
<td>Biology and Ecology of Fish and Shellfish</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FISH F612 Marine and Freshwater Conservation Biology</td>
<td></td>
</tr>
</tbody>
</table>
Ph.D., Fisheries

FISH F626 Behavioral Ecology of Fishes
FISH F628 Physiological Ecology of Fishes
FISH F633 Pacific Salmon Life Histories
FISH F650 Fish Ecology
FISH F651 Fishery Genetics
FISH/MSL F676 Aquatic Food Web Ecology
MSL F615 Physiology of Marine Organisms
MSL F640 Fisheries Oceanography
MSL F652 Marine Ecosystems

Quantitative Population Dynamics of Fish and Shellfish
FISH F421 Fisheries Population Dynamics
FISH F601 Quantitative Fishery Science
FISH F621 Estimation of Fish Abundance
FISH F622 Quantitative Fish Population Dynamics

Management and Human Dimensions of Fisheries
FISH F411 Human Dimensions of Environmental Systems
FISH F487 Fisheries Management
FISH F640 Management of Renewable Marine Resources
FISH F645 Bioeconomic Modeling and Fisheries Management
FISH F670 Quantitative Analysis for Marine Policy Decisions
FISH F675 Political Ecology

Seafood Science Emphasis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISH F661</td>
<td>Seafood Processing and Preservation</td>
<td>3</td>
</tr>
<tr>
<td>FISH F662</td>
<td>Seafood Composition and Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following from two of the three core areas:

Biology and Ecology of Fish and Shellfish
FISH F612 Marine and Freshwater Conservation Biology
FISH F626 Behavioral Ecology of Fishes
FISH F628 Physiological Ecology of Fishes
FISH F633 Pacific Salmon Life Histories
FISH F650 Fish Ecology
FISH F651 Fishery Genetics
FISH/MSL F676 Aquatic Food Web Ecology
MSL F615 Physiology of Marine Organisms
MSL F640 Fisheries Oceanography
MSL F652 Marine Ecosystems

Quantitative Population Dynamics of Fish and Shellfish
FISH F421 Fisheries Population Dynamics
FISH F601 Quantitative Fishery Science
FISH F621 Estimation of Fish Abundance
FISH F622 Quantitative Fish Population Dynamics

Management and Human Dimensions of Fisheries
FISH F411 Human Dimensions of Environmental Systems
FISH F487 Fisheries Management
FISH F640 Management of Renewable Marine Resources
FISH F645 Bioeconomic Modeling and Fisheries Management
FISH F670 Quantitative Analysis for Marine Policy Decisions
FISH F675 Political Ecology

Note: At least 21 credits of the required 30 M.S. degree credits must be at the F600 level. All other credits must be at least at the F400 level.

Ph.D., Fisheries

Complete the following admission requirement:

- Complete a master’s degree in a fisheries-related field or meet the requirements as outlined below to be accepted directly into a Ph.D. program without a master’s degree.
- Submit GRE scores.

Admission to Ph.D. Program Directly from Bachelor’s Program

Entering graduate students whose highest earned degree is the baccalaureate are normally admitted as Master of Science candidates. However, exceptionally able and accomplished students in this category are eligible for direct admission to the Ph.D. program. Criteria for direct admission to the Ph.D. program from the baccalaureate are:

1. Endorsement by proposed chair of graduate advisory committee AND 2 or 3 below.
2. At least one first-authored manuscript published or accepted for publication in a peer-reviewed scientific journal or receipt of an NSF, NIH, or similar prestigious pre-doctoral fellowship. OR
3. Demonstrated research proficiency (e.g. undergraduate thesis, Research Experiences for Undergraduates or other intensive research experience) documented in the application AND either:
   a. attained a GPA of at least 3.5 at the undergraduate level, or
   b. scored at the 80% level in two of three categories in the GRE.

Students who elect this route must fulfill course requirements as outlined for both the M.S. and Ph.D. degrees. Applicants who do not meet these criteria may enter the graduate program as M.S. candidates, and in exceptional cases may petition for conversion to the Ph.D. program after advancement to candidacy (for the M.S.). Such petitions must be approved both by the student’s current (M.S.) and proposed (Ph.D.) advisory committee and the department director or designee.

Minimum Requirements for Degree: 36 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISH F411</td>
<td>Human Dimensions of Environmental Systems</td>
<td></td>
</tr>
<tr>
<td>or FISH F611</td>
<td>Human Dimensions of Environmental Systems</td>
<td></td>
</tr>
<tr>
<td>FISH F487</td>
<td>Fisheries Management</td>
<td></td>
</tr>
<tr>
<td>or FISH F687</td>
<td>Fisheries Management</td>
<td></td>
</tr>
<tr>
<td>FISH F640</td>
<td>Management of Renewable Marine Resources</td>
<td></td>
</tr>
<tr>
<td>FISH F645</td>
<td>Bioeconomic Modeling and Fisheries Management</td>
<td></td>
</tr>
<tr>
<td>FISH F670</td>
<td>Quantitative Analysis for Marine Policy Decisions</td>
<td></td>
</tr>
</tbody>
</table>

Program Requirements

Complete the Ph.D. degree requirements. (p. 258)
Complete at least 18 credits of course work.
Complete a thesis.

1 Including 18 thesis credits.

Note: At least 9 of the required 18 Ph.D. degree credits must be at the F600 level, other courses must be at least at the F400 level.

Geological Engineering

College of Engineering and Mines
Department of Mining and Geological Engineering
907-474-7388
http://cem.uaf.edu/mingeo/

M.S. Degree

Minimum Requirements for Degree: 30-33 credits

Geological engineering deals with the application of geology. Geological engineers work with the environment in the true sense of the word. Properties of earth materials, exploration activities, geophysical and geochemical prospecting, site investigations and engineering geology are all phases of geological engineering.

The graduate program prepares students for employment with industry, consulting companies and government agencies.

Degree

• M.S., Geological Engineering (p. 293)

M.S., Geological Engineering

Complete one of the following admission requirements:

Complete a bachelor’s degree in geological engineering;

Complete a bachelor’s degree in the natural sciences and complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES F208</td>
<td>Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ES F331</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>GE F365</td>
<td>Geological Materials Engineering</td>
<td>3</td>
</tr>
<tr>
<td>or MIN F370</td>
<td>Rock Mechanics</td>
<td></td>
</tr>
<tr>
<td>GE F405</td>
<td>Exploration Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GE F420</td>
<td>Subsurface Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>MIN F408</td>
<td>Mineral Valuation and Economics</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following:  6-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F262</td>
<td>Rocks and Minerals</td>
<td></td>
</tr>
<tr>
<td>and GEOS F332</td>
<td>and Ore Deposits and Structure</td>
<td></td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td></td>
</tr>
<tr>
<td>and GEOS F314</td>
<td>and Structural Geology</td>
<td></td>
</tr>
</tbody>
</table>

Submit GRE scores.

Thesis Option

Minimum Requirements for Degree: 30 credits

Complete all of the following:

General University Requirements
Complete the general university requirements. (p. 254)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 257)

Thesis Requirements
Complete four from the following:  12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE F430</td>
<td>Geomechanical Instrumentation</td>
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</tr>
<tr>
<td>GE F440</td>
<td>Slope Stability</td>
<td></td>
</tr>
<tr>
<td>GE F610</td>
<td>Subsurface Hydrology</td>
<td></td>
</tr>
<tr>
<td>GE F620</td>
<td>Advanced Groundwater Hydrology</td>
<td></td>
</tr>
<tr>
<td>GE F622</td>
<td>Advanced Soil Physics</td>
<td></td>
</tr>
<tr>
<td>GE F624</td>
<td>Stochastic Hydrology and Geohydrology</td>
<td></td>
</tr>
<tr>
<td>GE F626</td>
<td>Thermal Geotechnics</td>
<td></td>
</tr>
<tr>
<td>GE F635</td>
<td>Advanced Geostatistical Applications</td>
<td></td>
</tr>
<tr>
<td>GE F665</td>
<td>Advanced Geological Materials Engine</td>
<td></td>
</tr>
<tr>
<td>GE F666</td>
<td>Advanced Engineering Geology</td>
<td></td>
</tr>
<tr>
<td>GE F668</td>
<td>Tunneling Geotechniques</td>
<td></td>
</tr>
<tr>
<td>MIN F621</td>
<td>Advanced Mineral Economics</td>
<td></td>
</tr>
<tr>
<td>MIN F673</td>
<td>Advanced Rock Mechanics</td>
<td></td>
</tr>
</tbody>
</table>

Geological engineering courses and technical electives  11

Complete a bachelor’s degree in geology and complete the following courses:

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE F365</td>
<td>Geological Materials Engineering</td>
<td>3</td>
</tr>
<tr>
<td>or MIN F370</td>
<td>Rock Mechanics</td>
<td></td>
</tr>
</tbody>
</table>

Complete one of the following:  6-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOS F262</td>
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<td>and GEOS F332</td>
<td>and Ore Deposits and Structure</td>
<td></td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td></td>
</tr>
<tr>
<td>and GEOS F314</td>
<td>and Structural Geology</td>
<td></td>
</tr>
</tbody>
</table>

Complete a bachelor’s degree in general engineering and complete the following courses:

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>ES F341</td>
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<td>4</td>
</tr>
<tr>
<td>GE F365</td>
<td>Geological Materials Engineering</td>
<td>3</td>
</tr>
<tr>
<td>or MIN F370</td>
<td>Rock Mechanics</td>
<td></td>
</tr>
</tbody>
</table>
Non-Thesis Option

Minimum Requirements for Degree: 33 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master’s Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Thesis Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete five from the following:</td>
<td>15</td>
</tr>
<tr>
<td>GE F430</td>
<td>Geomechanical Instrumentation</td>
<td></td>
</tr>
<tr>
<td>GE F440</td>
<td>Slope Stability</td>
<td></td>
</tr>
<tr>
<td>GE F610</td>
<td>Subsurface Hydrology</td>
<td></td>
</tr>
<tr>
<td>GE F620</td>
<td>Advanced Groundwater Hydrology</td>
<td></td>
</tr>
<tr>
<td>GE F622</td>
<td>Advanced Soil Physics</td>
<td></td>
</tr>
<tr>
<td>GE F624</td>
<td>Stochastic Hydrology and Geohydrology</td>
<td></td>
</tr>
<tr>
<td>GE F626</td>
<td>Thermal Geotechnics</td>
<td></td>
</tr>
<tr>
<td>GE F635</td>
<td>Advanced Geostatistical Applications</td>
<td></td>
</tr>
<tr>
<td>GE F665</td>
<td>Advanced Geological Materials Engineering</td>
<td></td>
</tr>
<tr>
<td>GE F666</td>
<td>Advanced Engineering Geology</td>
<td></td>
</tr>
<tr>
<td>GE F668</td>
<td>Tunneling Geotechniques</td>
<td></td>
</tr>
<tr>
<td>MIN F621</td>
<td>Advanced Mineral Economics</td>
<td></td>
</tr>
<tr>
<td>MIN F673</td>
<td>Advanced Rock Mechanics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Geological engineering courses and technical electives</td>
<td>11</td>
</tr>
<tr>
<td>GE F692</td>
<td>Graduate Seminar</td>
<td>1</td>
</tr>
<tr>
<td>GE F698</td>
<td>Non-thesis Research/Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Geophysics

College of Natural Science and Mathematics
Department of Geosciences
907-474-7565
http://www.uaf.edu/geology/

M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

The geophysics program at UAF is closely connected with the Geophysical Institute and is optimally positioned to investigate a wide array of geophysical phenomena. Students have the option to obtain a general geophysics degree or to choose of the of three concentrations to focus their studies.

Upon graduation, a student is expected to be able to:

1. address geophysical problems using the principles of conservation of energy, mass and momentum using both physical and mathematical concepts, particularly with respect to mathematical techniques such as linear algebra, vector calculus and partial differential equations;
2. explain physical processes underlying the Earth’s global scale features, including plate tectonics and the gravitational and magnetic fields;
3. describe common geophysical problems and assess the advantages and disadvantages of various theoretical, modeling or observational approaches to solving them, including identifying key assumptions underlying each approach;
4. frame well-defined scientific research questions and apply modern computational methods and observational techniques necessary to conduct the research;
5. publish and present results in peer-reviewed articles, scientific reports, and at national and international scientific meetings using oral and written skills developed through regular faculty feedback.

Degrees

• M.S., Geophysics (p. 294)
• Ph.D., Geophysics (p. 295)

M.S., Geophysics

• Complete the following admission requirements:
  a. Submit GRE scores.
  b. Complete a background at least to the level of a B.S. concentration in geology, geophysics or an appropriate physical science or engineering.
  c. Complete MATH F302
  d. Recommended: MATH F314, MATH F421, PHYS F220

Concentrations: Solid-Earth Geophysics; Snow, Ice and Permafrost Geophysics; Remote Sensing Geophysics

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master’s Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete 6-12 thesis credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete any deficiencies concurrently with this degree.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Submit a written thesis proposal and pass an oral comprehensive examination centered on this proposal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete and submit a written thesis and pass an oral defense of thesis.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Geophysics Core Requirements</td>
<td></td>
</tr>
<tr>
<td>GEOS F631</td>
<td>Foundations of Geophysics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F682</td>
<td>Geoscience Seminar (fall semester)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Complete 6 credits from relevant graduate-level courses agreed by the advisory committee or select one from the following:</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Solid-Earth Geophysics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snow, Ice and Permafrost Geophysics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete 7 credits of courses approved by the advisory committee</td>
<td>7</td>
</tr>
<tr>
<td>GEOS F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Thesis credits or credits from courses that are F400-level or higher.</td>
<td>6</td>
</tr>
</tbody>
</table>
The minimum credits required is 30. The required M.S. course work above represents 18 credits. The minimum number of thesis credits required is 6. The remaining 6 credits can either be thesis credits or courses that are F400-level or higher.

Concentrations

SOLID-EARTH GEOPHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F604</td>
<td>Seismology</td>
<td></td>
</tr>
<tr>
<td>GEOS F605</td>
<td>Geochronology</td>
<td></td>
</tr>
<tr>
<td>GEOS F613</td>
<td>Global Tectonics</td>
<td></td>
</tr>
<tr>
<td>GEOS F626</td>
<td>Applied Seismology</td>
<td></td>
</tr>
<tr>
<td>GEOS F655</td>
<td>Tectonic Geodesy</td>
<td></td>
</tr>
<tr>
<td>GEOS F671</td>
<td>Volcano Seismology</td>
<td></td>
</tr>
</tbody>
</table>

SNOW, ICE AND PERMAFROST GEOPHYSICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F614</td>
<td>Ice Physics</td>
<td></td>
</tr>
<tr>
<td>GEOS F615</td>
<td>Sea Ice</td>
<td></td>
</tr>
<tr>
<td>GEOS F616</td>
<td>Permafrost</td>
<td></td>
</tr>
<tr>
<td>GEOS F617</td>
<td>Glaciers</td>
<td></td>
</tr>
</tbody>
</table>

REMOTE SENSING

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F622</td>
<td>Digital Image Processing in the Geosciences</td>
<td></td>
</tr>
<tr>
<td>GEOS F639</td>
<td>InSar and Its Applications</td>
<td></td>
</tr>
<tr>
<td>GEOS F654</td>
<td>Visible and Infrared Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOS F657</td>
<td>Microwave Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOS F676</td>
<td>Remote Sensing of Volcanic Eruptions</td>
<td></td>
</tr>
<tr>
<td>ATM F613</td>
<td>Atmospheric Radiation</td>
<td></td>
</tr>
</tbody>
</table>

Ph.D., Geophysics

Complete the following admission requirement:

- Submit GRE scores.
- Complete a master’s degree in geology, geophysics or an appropriate field of physical science or engineering.

Admission to Ph.D. Geophysics Program Directly from a Bachelor’s Program

Entering graduate students whose highest earned degree is the baccalaureate are normally admitted as Master of Science candidates. However, exceptionally able and accomplished students in this category are eligible for direct admission to the Ph.D. program. For direct admission from the baccalaureate to the Ph.D. program, a student must receive approval from the graduate admission committee and also meet one of three criteria:

1. At least one first-authored manuscript published, accepted or submitted for publication in a peer-reviewed scientific journal
2. Receipt of an NSF, NIH or similar prestigious pre-doctoral fellowship.
3. Demonstrated research proficiency AND either
   - attained a GPA of at least 3.5 in mathematics and science courses at the undergraduate level, or
   - scored at or above the 80th percentile in two of three categories in the GRE.

The requirement of demonstrated research proficiency can be waived for exceptionally promising students. In this case the student is required to complete a research or review paper focusing on a thesis-related topic approved by the graduate advising committee. The paper should be roughly 4,000-5,000 words and must be submitted and approved by the advising committee within the first three semesters to maintain Ph.D. status. Failure will result in changing the student’s status to M.S. candidate.

After admission, M.S. candidates may, in exceptional cases, petition for conversion to the Ph.D. program if they satisfy one of the above criteria. Such petitions must be approved both by the student’s current (M.S.) and proposed (Ph.D.) advisory committee and the department director or designee.

Minimum Requirements for Degree: 18 thesis credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F631</td>
<td>Foundations of Geophysics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F682</td>
<td>Geoscience Seminar (fall semester)</td>
<td>1</td>
</tr>
</tbody>
</table>

Complete 6 credits from relevant graduate-level courses agreed by the advisory committee, or select one of the following concentrations:

Solid-Earth Geophysics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F604</td>
<td>Seismology</td>
<td></td>
</tr>
<tr>
<td>GEOS F605</td>
<td>Geochronology</td>
<td></td>
</tr>
<tr>
<td>GEOS F613</td>
<td>Global Tectonics</td>
<td></td>
</tr>
<tr>
<td>GEOS F626</td>
<td>Applied Seismology</td>
<td></td>
</tr>
<tr>
<td>GEOS F655</td>
<td>Tectonic Geodesy</td>
<td></td>
</tr>
<tr>
<td>GEOS F671</td>
<td>Volcano Seismology</td>
<td></td>
</tr>
</tbody>
</table>

Snow, Ice and Permafrost Geophysics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F614</td>
<td>Ice Physics</td>
<td></td>
</tr>
<tr>
<td>GEOS F615</td>
<td>Sea Ice</td>
<td></td>
</tr>
<tr>
<td>GEOS F616</td>
<td>Permafrost</td>
<td></td>
</tr>
<tr>
<td>GEOS F617</td>
<td>Glaciers</td>
<td></td>
</tr>
</tbody>
</table>

Remote Sensing

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F613</td>
<td>Atmospheric Radiation</td>
<td></td>
</tr>
<tr>
<td>GEOS F622</td>
<td>Digital Image Processing in the Geosciences</td>
<td></td>
</tr>
<tr>
<td>GEOS F639</td>
<td>InSar and Its Applications</td>
<td></td>
</tr>
<tr>
<td>GEOS F654</td>
<td>Visible and Infrared Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOS F657</td>
<td>Microwave Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GEOS F676</td>
<td>Remote Sensing of Volcanic Eruptions</td>
<td></td>
</tr>
</tbody>
</table>

Advanced Skills Categories
Complete 3 credits each in two of the following advanced skills categories:

**Digital Signal Analysis and Remote Sensing**
- GEOS F622 Digital Image Processing in the Geosciences
- GEOS F654 Visible and Infrared Remote Sensing
- GEOS F657 Microwave Remote Sensing
- PHYS F628 Digital Time Series Analysis

**Statistics and Parameter Estimation**
- ATM F610 Analysis Methods in Meteorology and Climate
- GEOS F627 Inverse Problems and Parameter Estimation
- STAT F401 Regression and Analysis of Variance
- STAT F461 Applied Multivariate Statistics

**Mathematical Methods**
- MATH F421 Applied Analysis
- MATH F614 Numerical Linear Algebra
- MATH F615 Numerical Analysis of Differential Equations
- MATH F661 Optimization
- ME F601 Finite Element Analysis in Engineering

**Skills course**
One graduate-level advanced skills course approved by the student's advisory committee

**Ph.D. Degree Requirements**
Complete the Ph.D. degree requirements. (p. 258)
Complete and pass a written and oral comprehensive examination.
Complete and submit a written thesis proposal for approval.
Complete a research program as arranged with the graduate advisory committee.

**Degrees**
- M.S., Geoscience (p. 296)
- Ph.D., Geoscience (p. 296)

**M.S., Geoscience**
- Complete the following admission requirements:
  a. Submit GRE scores.
  b. Complete a background at least to the level of a B.S. concentration in geology, geophysics or earth science.

**Concentrations: Geography, Geology**

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F610</td>
<td>Analysis Methods in Meteorology and Climate</td>
<td></td>
</tr>
<tr>
<td>GEOS F627</td>
<td>Inverse Problems and Parameter Estimation</td>
<td></td>
</tr>
<tr>
<td>STAT F401</td>
<td>Regression and Analysis of Variance</td>
<td></td>
</tr>
<tr>
<td>STAT F461</td>
<td>Applied Multivariate Statistics</td>
<td></td>
</tr>
</tbody>
</table>

**M.S., Ph.D. Degrees**
Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

Graduates in geoscience have broad backgrounds in Earth sciences or geography. There are concentrations available in geology and geography and requirements are flexible enough to allow students to customize the curriculum.

There are about 40 professional geoscientists in residence on campus and graduate students normally participate in the ongoing research of these professionals. Teaching and research assistantships are available to graduate students in many of these areas.

**Concentrations**

**GEOGRAPHY**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete 12 geography-related credits at the F600 level as approved by the graduate advisory committee.</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**GEOLOGY**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete 12 credits at the F600 level as approved by the graduate advisory committee.</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**Ph.D., Geoscience**
- Complete the following admission requirement:
  a. Submit GRE scores.

**Concentrations: Geography, Geology**

**Minimum Requirements for Degree: 18 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete the course work requirements for the appropriate M.S. concentration.
Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 258)
Complete and pass a written and oral comprehensive examination.
Complete and submit a written thesis proposal for approval.
Complete a research program as arranged with the graduate advisory committee.

Note: In addition to courses listed under the geoscience program, students should check the course listings under the College of Engineering and Mines and the marine science program.

Note: In addition to the facilities available directly through the instructional program, UAF has active research laboratories in the fields of seismology, volcanology, paleomagnetism, isotope geochronology, glaciology and ice physics in the Geophysical Institute (see Geophysical Institute (p. 22) under Research). These laboratories can frequently provide topics for M.S. and Ph.D. theses. Other laboratories are also available in other divisions on campus, as listed under Research Institutes and Centers (p. 21).

Indigenous Studies
College of Liberal Arts
College of Rural and Community Development
School of Education
907-474-7464
http://www.uaf.edu/cxcs/indigenousphd/

Ph.D. Degree
Minimum Requirements for Degree: 48 credits

Indigenous studies doctoral candidates will participate in research activities across a variety of UAF academic disciplines and applied fields. Students are encouraged to engage in comparative studies with other indigenous peoples around the world and to focus their dissertation research on issues of relevance to Alaska and the Arctic. Using the interdisciplinary Ph.D. model of academic assignment, the student’s home base will be in the school or college of the student’s major advisor, who also serves as an affiliate faculty member for the program.

The program objectives and its curriculum center around six thematic areas of study: indigenous studies/research, indigenous knowledge systems, indigenous education/pedagogy, indigenous languages, indigenous leadership and indigenous sustainability. Students may focus on one of these areas or draw on multiple themes in collaboration with their graduate committee to develop their areas of knowledge and dissertation research. In collaboration with the graduate committee, each student will develop a program of course work and research that produces a unique intellectual contribution to the applied fields associated with Indigenous Studies.

Degree
- Ph.D., Indigenous Studies (p. 297)

Ph.D., Indigenous Studies

Minimum Requirements for Degree: 48 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph.D. Degree Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the Ph.D. degree requirements. (p. 258)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete required and elective courses.</td>
<td></td>
</tr>
<tr>
<td>ANL/CCS/ED/ RD F608</td>
<td>Indigenous Knowledge Systems</td>
<td>3</td>
</tr>
<tr>
<td>ANL/CCS/ED/ RD F690</td>
<td>Seminar in Cross-cultural Studies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Core Courses</td>
<td>6</td>
</tr>
<tr>
<td>ANL F601</td>
<td>Seminar in Language Revitalization</td>
<td></td>
</tr>
<tr>
<td>ANTH F631</td>
<td>Linguistic Anthropology: Language, Thought and Action</td>
<td></td>
</tr>
<tr>
<td>ANTH F646</td>
<td>Economic Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH/BIOL/ ECON/NRM F647</td>
<td>Global to Local Sustainability</td>
<td></td>
</tr>
<tr>
<td>ANTH/BIOL/ ECON/NRM F649</td>
<td>Integrated Assessment and Adaptive Management</td>
<td></td>
</tr>
<tr>
<td>ANTH/ACNS F610</td>
<td>Northern Indigenous Peoples and Contemporary Issues</td>
<td></td>
</tr>
<tr>
<td>CCS F602</td>
<td>Cultural and Intellectual Property Rights</td>
<td></td>
</tr>
<tr>
<td>CCS/ED F610</td>
<td>Education and Cultural Processes</td>
<td></td>
</tr>
<tr>
<td>CCS/ED F611</td>
<td>Culture, Cognition and Knowledge Acquisition</td>
<td></td>
</tr>
<tr>
<td>CCS F612</td>
<td>Traditional Ecological Knowledge</td>
<td></td>
</tr>
<tr>
<td>ED/LING F621</td>
<td>Cultural Aspects of Language Acquisition</td>
<td></td>
</tr>
<tr>
<td>ED F616</td>
<td>Education and Socioeconomic Change</td>
<td></td>
</tr>
<tr>
<td>ED F620</td>
<td>Language, Literacy and Learning</td>
<td></td>
</tr>
<tr>
<td>ED F660</td>
<td>Educational Administration in Cultural Perspective</td>
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</tr>
<tr>
<td>RD F600</td>
<td>Circumpolar Indigenous Leadership Symposium</td>
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</tr>
<tr>
<td>RD F601</td>
<td>Political Economy of the Circumpolar North</td>
<td></td>
</tr>
<tr>
<td>RD F651</td>
<td>Management Strategies for Rural Development</td>
<td></td>
</tr>
<tr>
<td>RD F652</td>
<td>Indigenous Organization Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete two from the following:</td>
<td>6</td>
</tr>
<tr>
<td>ANTH F424</td>
<td>Analytical Techniques</td>
<td></td>
</tr>
<tr>
<td>ANTH F637</td>
<td>Methods in Ethnohistorical Research</td>
<td></td>
</tr>
<tr>
<td>CCS F604</td>
<td>Documenting Indigenous Knowledge</td>
<td></td>
</tr>
<tr>
<td>CCS/ED F603</td>
<td>Field Study Research Methods</td>
<td></td>
</tr>
<tr>
<td>RD F650</td>
<td>Community-based Research Methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete four specialty elective courses</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Doctoral Dissertation</td>
<td></td>
</tr>
<tr>
<td>ANL/CCS/ED/ RD F699</td>
<td>Thesis</td>
<td>18</td>
</tr>
</tbody>
</table>

Completion of 18 distance credits will constitute residency.
Interdisciplinary Studies

Note: Recommended additional academic experience: Students are encouraged to enroll in a minimum of one semester of course work at a partner institution with program offerings related to their area of specialization. Students are encouraged to make at least one formal academic presentation at a statewide, national or international meeting, as well as a community-level presentation in Alaska. Students are encouraged to study a language other than English, as appropriate for the thematic area in which they are enrolled.

Interdisciplinary Studies
Office of the Graduate School and Interdisciplinary Programs
907-474-7464
http://www.uaf.edu/gradsch/classes/interdisciplinary-program/

M.A., M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.A. and M.S.: 30 credits; Ph.D.: 18 thesis credits

The UAF interdisciplinary program provides flexibility to students who have well-defined goals that do not fit into one of the established majors offered by the university. Interdisciplinary Studies is located in the Graduate School office. Help with the application process, contact information for faculty advisors and assistance for interdisciplinary students is available at 907-474-7464 or see http://www.uaf.edu/gradsch/classes/interdisciplinary-program/.

Degrees

- M.A., Interdisciplinary Studies (p. 298)
- M.S., Interdisciplinary Studies (p. 298)
- Ph.D., Interdisciplinary Studies (p. 298)

M.A., INTERDISCIPLINARY STUDIES

Complete the admission process including the following:

- Submit GRE scores
- In consultation with a UAF faculty member: prepare and submit a statement of research goals and justification for interdisciplinary approach, and a preliminary graduate study plan.

Minimum Requirements for Degree: 30 credits

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
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<tr>
<td></td>
<td>Master’s Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
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<tr>
<td></td>
<td>Pass a comprehensive examination.</td>
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</tbody>
</table>

Ph.D., Interdisciplinary Studies

- Complete the following admission process requirements:
  a. Submit GRE scores (scores must be less than 5 years old)
  b. Complete a master’s degree
  c. In consultation with a UAF faculty member, prepare and submit:
     a. Statement of Academic Goals
     b. Research Prospectus
     c. Proposed Graduate Study Plan
  d. Other materials: resume, official transcripts, two (2) academic letters of recommendation, two (2) Letters of Endorsement from two proposed PhD Advisory Committee members (one from UAF committee chair and one from a different department).

Minimum Requirements for Degree: 36 credits

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
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<tr>
<td></td>
<td>Ph.D. Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the Ph.D. degree requirements. (p. 258)</td>
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<tr>
<td></td>
<td>Pass both a written and oral comprehensive exam</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Thesis credits (F699)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Coursework</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Additional course work or thesis credits</td>
<td>9</td>
</tr>
</tbody>
</table>

  1 The oral comprehensive exam may be an oral defense of the written research proposal.
  2 Complete coursework in thematic areas as determined by the advisory committee.

Justice Administration

College of Liberal Arts
Justice Program
907-474-5500
http://www.uaf.edu/justice/

M.A. Degree

Minimum Requirements for Degree: 30 credits

The justice discipline represents a melding of theoretical and applied concepts, and the M.A. degree in administration of justice reflects that dichotomy. Consequently, students explore theoretical models associated with different aspects of the criminal justice system, but also study the structure and administration of the criminal justice system.

The M.A. degree in administration of justice has been designed as a web-based degree program in order to accommodate the needs of justice professionals for whom taking a two-year leave of absence from
their profession is not feasible, or for whom relocating to the Fairbanks vicinity is not possible. The M.A. degree program has attracted justice professionals from throughout the country who have found the flexibility of a web-based format useful.

**Degree**

- M.A., Justice Administration (p. 299)

### M.A., Justice Administration

The M.A. in justice administration prepares students for increasingly responsible roles in the management of justice-related agencies and organizations.

Completion of a bachelor's degree from an accredited institution.

**Minimum Requirements for Degree: 30 credits**

<table>
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<tr>
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<tr>
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<tr>
<td></td>
<td><strong>Master's Degree Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the master's degree requirements.</td>
<td>(p. 257)</td>
</tr>
<tr>
<td></td>
<td>Complete a minimum of 18 graduate UAF credits.</td>
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<tr>
<td></td>
<td>Receive a passing grade on a written comprehensive exam proctored in conjunction with completion of JUST F690.</td>
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<tr>
<td></td>
<td>Complete a non-research path which consists of 30 units of coursework; or</td>
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<tr>
<td></td>
<td>Complete a research path which consists of 30 units of coursework where 6 units are research project or thesis work.</td>
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<td></td>
<td>If a student elects to complete a thesis or project, receive a passing grade on an oral defense examination of a thesis or project.</td>
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<tr>
<td></td>
<td><strong>Complete the following:</strong></td>
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</tr>
<tr>
<td>JUST F605</td>
<td>Administration and Management of Criminal Justice Organizations</td>
<td>3</td>
</tr>
<tr>
<td>JUST F610</td>
<td>Ethics in Criminal Justice Management</td>
<td>3</td>
</tr>
<tr>
<td>JUST F615</td>
<td>Justice Program Planning/ Evaluation and Grant Writing</td>
<td>3</td>
</tr>
<tr>
<td>JUST F620</td>
<td>Personnel Management in Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>JUST F625</td>
<td>Legal Aspect of Criminal Justice Management</td>
<td>3</td>
</tr>
<tr>
<td>JUST F640</td>
<td>Community/Restorative Justice</td>
<td>3</td>
</tr>
<tr>
<td>JUST F690</td>
<td>Seminar in Critical Issues and Criminal Justice Policy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Complete 9 units JUST electives; or from approved areas:</strong></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>6 units of JUST F698 (Project); or 6 units of JUST F699 (Thesis)</td>
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<tr>
<td></td>
<td>Any approved 600-level ANTH, COJO, HSEM and MBA (or other approved discipline) course; or</td>
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<tr>
<td></td>
<td>400-level JUST, ANTH, BA, COJO, HSEM or LEAD electives (up to 6 units); or</td>
<td></td>
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</table>

**400-level (up to six units) or graduate-level (up to nine units) credits may be used as substitutes if transferred from the FBI National Academy, Command and General Staff College, Command College, Southern Police Institute or similar programs approved by the American Council on Education (e.g., graduate certificate relevant to justice from another institution)**

### Linguistics, Applied

Linguistics is the study of language and covers a variety of subjects including theories of grammar and how we produce language. It has a number of applications, including language teaching, teaching of English as a second or foreign language, and documentation of endangered languages.

Graduate students in applied linguistics may pursue a general program or develop a concentration in either language documentation or second language acquisition and teacher education. Students are expected either to have or to develop proficiency in at least one language other than English, as demonstrated by a proficiency exam or a comparable measure determined by the student’s graduate committee. Students pursuing certification in Second Language Acquisition and Teacher Education must demonstrate proficiency in the language they intend to teach. The general program provides students with a practical foundation in linguistics but remains broad enough to allow exploration of a variety of possible thesis topics.

Language documentation is designed to provide practical foundations in linguistics, techniques of fieldwork and documentation, with special focus on Alaska Native languages.

Second language acquisition and teacher education is designed for students interested in teaching English as a second language, a foreign or Alaska Native language. It is designed to provide theoretical and practical foundations in second language acquisition, language teaching, materials development, and language assessment. Students may earn a postcertification endorsement in second language acquisition, bilingual education and literacy (SLABEL).

SLABEL is an innovative master’s degree program that combines course work in literacy with second language acquisition. Candidates will receive an interdisciplinary education that will have immediate application for K-12 language arts, English, bilingual, ELL and content-area teachers, working in increasingly complex bilingual, multilingual and multi-modal classroom environments. Candidates simultaneously earn a master’s degree and a K-12 statewide endorsement based on TESOL standards, Alaska Teacher Standards and Alaska Cultural Standards. The program may be completed in either education (M. Ed.) (p. 280) or applied linguistics (M.A.). While program requirements are identical, the specific degree awarded (M.Ed. or M.A.) is determined by the advisor’s department or school. Comprehensive exams and teacher-action research are required.
Degree

- M.A., Linguistics, Applied (p. 300)

M.A., Linguistics, Applied

Minimum requirements for degree: 30 credits

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<tr>
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<td>Complete the master’s degree requirements. (p. 257)</td>
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Program Requirements

Complete the following:

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<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>LING F600</td>
<td>Research Methods for Applied Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING F601</td>
<td>Principles of Linguistic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>LING F698</td>
<td>Non-thesis Research/Project</td>
<td>6</td>
</tr>
<tr>
<td>or LING F699</td>
<td>Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Concentrations

Complete one of the following concentrations:

- General Language Documentation
- Second Language Acquisition Teacher Education

Electives

Complete three electives approved by committee.

Concentrations

GENERAL

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING F602</td>
<td>Second Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>LING F603</td>
<td>Phonetics and Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING F604</td>
<td>Morphology and Syntax</td>
<td>3</td>
</tr>
</tbody>
</table>

LANGUAGE DOCUMENTATION

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING F603</td>
<td>Phonetics and Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING F604</td>
<td>Morphology and Syntax</td>
<td>3</td>
</tr>
<tr>
<td>LING F631</td>
<td>Field Methods in Descriptive Linguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

SECOND LANGUAGE ACQUISITION TEACHER EDUCATION

Complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LING F602</td>
<td>Second Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>LING F610</td>
<td>Theory and Methods of Second Language Teaching</td>
<td>3</td>
</tr>
<tr>
<td>LING F611</td>
<td>Second Language Curriculum and Materials Development</td>
<td>3</td>
</tr>
<tr>
<td>or ED F683</td>
<td>Instruction and Assessment in Literacy</td>
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</tr>
</tbody>
</table>

ELECTIVE COURSES

This is a nonexhaustive list of possible electives.

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>LING F441</td>
<td>Topics in Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING/FL F451</td>
<td>English Second Language Teaching Practicum</td>
<td>3</td>
</tr>
<tr>
<td>LING F602</td>
<td>Second Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>LING F603</td>
<td>Phonetics and Phonology</td>
<td>3</td>
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<tr>
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<td>Theory and Methods of Second Language Teaching</td>
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</tr>
<tr>
<td>LING F611</td>
<td>Second Language Curriculum and Materials Development</td>
<td>3</td>
</tr>
<tr>
<td>LING F631</td>
<td>Field Methods in Descriptive Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING F650</td>
<td>Language Policy and Planning</td>
<td>3</td>
</tr>
<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
<td>3</td>
</tr>
<tr>
<td>ED F670</td>
<td>Developing Literacy: ECE-12</td>
<td>3</td>
</tr>
<tr>
<td>ED F673</td>
<td>Literacy in the Content Area</td>
<td>3</td>
</tr>
<tr>
<td>ED F683</td>
<td>Instruction and Assessment in Literacy</td>
<td>3</td>
</tr>
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</table>

1 Per Graduate School rules, up to 6 credits of committee-approved elective credit at the 400 level may be counted toward a graduate degree.

2 Students pursuing postcertification endorsement in second language acquisition, bilingual education and literacy must complete ED F601, ED F670, ED F673 and ED F683.

Marine Biology

College of Fisheries and Ocean Sciences
Graduate Program in Marine Sciences and Limnology
907-474-7289
http://www.uaf.edu/cfos/academics/

M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

The marine biology graduate program focuses on the ecology, physiology and biochemistry/molecular biology of marine organisms. Students may pursue either a M.S. or Ph.D. degree in marine biology. Graduate students are afforded excellent opportunities for laboratory and field research through the Institute of Marine Science. Laboratory facilities are available in Fairbanks, the Seward Marine Center, the Juneau Center, College of Fisheries and Ocean Sciences, the Kodiak Seafood and Marine Science Center and at the Kasitsna Bay Laboratory. Opportunities for field work are available on the R/V Little Dipper, which operates in Resurrection Bay.

Students may select courses offered by the graduate program in marine sciences and limnology, the fisheries program, the biology and wildlife department and the chemistry and biochemistry department.

Students considering graduate study in marine biology should have a strong background in biology, molecular biology or biochemistry. Students are admitted on the basis of their ability and the capability
of the program to meet their particular interests and needs. Faculty review requests for admission throughout the year. Stipends for financial support are awarded competitively. Limited fellowship support is available. Most students are supported on research projects that relate directly to their degree research.

Degrees

- M.S., Marine Biology (p. 301)
- Ph.D., Marine Biology (p. 301)

M.S., Marine Biology

- Complete the following admission requirement:
  a. Submit GRE scores.

Minimum Requirements for Degree: 30 credits
Students must earn a B- grade or better in the core courses of the degree program before being eligible to take the comprehensive exam.

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<tr>
<th>Code</th>
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<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
<tr>
<td>MSL F610</td>
<td>Marine Biology</td>
<td>3</td>
</tr>
<tr>
<td>MSL F615</td>
<td>Physiology of Marine Organisms</td>
<td>3</td>
</tr>
<tr>
<td>MSL F650</td>
<td>Biological Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>MSL F651</td>
<td>Marine Biology and Ecology Field Course (or an acceptable substitution)</td>
<td>4</td>
</tr>
<tr>
<td>MSL F692</td>
<td>Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

1 The following is the official GPMSL policy regarding acceptable substitutions for MSL F651 to meet the field course requirement for the M.S. marine biology program:
   a. A combination of MSL F421 plus a minimum of eight days (for 2 credits through a pre-approved independent study course) aboard an oceanographic vessel or a coastal field station conducting biological research unrelated to the student’s thesis research, if approved in advance by the Graduate Advisory Committee, Master’s Comprehensive Exam Committee, and the chief scientist of the cruise. (Note: Assuming the student spends 10 hours per day on the vessel/field station, the student will accumulate 80 hours of experience, which is equivalent to a 2-credit lab course.) To obtain approval for this last substitution, the chief scientist of the cruise/field station must submit a memorandum to the Master’s Comprehensive Exam Committee stating that the student will spend at least eight days at sea substantially involved in a variety of cruise activities that are not related to the student’s thesis research; or
   b. MSL F656, or
   c. MSL F697.

Please see department for specific details on course requirements.

Ph.D., Marine Biology

Complete the following admission requirement:

1. Submit GRE scores.

Minimum Requirements for Degree: 18 thesis credits
Students must earn a B- grade or better in the M.S. core courses of the degree program before being eligible to complete the qualifying exam required for this program.

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<td>Ph.D. Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the Ph.D. degree requirements. (p. 258)</td>
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</table>

Program Requirements

Complete a project or literature review.
Complete at least 12 credits from the following:

Minimum Requirements for Degree: 30 credits

<table>
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<tr>
<th>Code</th>
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<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
</tbody>
</table>

Program Requirements

Complete at least 12 credits from the following:

Marine Studies

College of Fisheries and Ocean Sciences
Graduate Program in Marine Sciences and Limnology
907-474-7289
http://www.uaf.edu/cfos/academics/

M.M.S. Degree

Minimum Requirements for Degree: 30 credits

The M.M.S. degree offers a broad degree program, which can include topics such as marine ecology, organismal biology, ecosystem processes, and oceanography. Students will select courses offered by the graduate program in marine sciences and limnology and a variety of electives, which can also be from the fisheries program or the statistics or biology and wildlife departments. While the M.M.S. degree is primarily based on a project instead of a research-oriented thesis, M.M.S. graduate students still are afforded excellent opportunities for laboratory and field experiences through the Institute of Marine Science. Laboratory facilities are available in Fairbanks, the Seward Marine Center, the Juneau Center and at the Kasitsna Bay Laboratory.

Students considering an M.M.S. degree should have a strong background in the various fields of oceanography, ecology, biology, molecular biology or biochemistry. Students are admitted on the basis of their ability and the capability of the program to meet their particular interests and needs. Faculty review requests for admission throughout the year. There is no financial support for students in this program.

Degrees

- M.M.S., Marine Studies (p. 301)

M.M.S., Marine Studies

Complete the following admission requirement:

- Submit GRE scores.

Minimum Requirements for Degree: 30 credits

<table>
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<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
<td></td>
</tr>
</tbody>
</table>

Program Requirements

Complete a project or literature review.
Complete at least 12 credits from the following:

1
Complete 2 credits from the following seminars:

MSL F601 Professional Development
MSL F602 Proposal Writing
MSL F605 Controversies in Marine Science
MSL F692 Seminar

Complete 2 credits from the following:

MSL F421/F623 Field Course in Subtidal Studies
MSL F450/F651 Marine Biology and Ecology Field Course
MSL F456/F656 Kelp Forest Ecology
MSL F625 Shipboard Techniques

Complete 6 credits of graduate project or literature review.

Complete 8 credits of approved electives.

1. Students must earn a grade of B- or better in the core courses of the degree program before being eligible to take the comprehensive exam.

2. Students may also complete these credits with individual studies in place of the regularly scheduled classes listed.

3. The project or literature review will be determined by the major advisor.

4. Electives will be selected based on student interest, relatedness to degree and approval by their major advisor.

**Mathematics**

College of Natural Science and Mathematics
Department of Mathematics and Statistics
907-474-7332
http://www.uaf.edu/dms/

**M.S., Ph.D. Degrees**

**Minimum Requirements for Degrees: M.S.: 30-35 credits; Ph.D.: 18 thesis credits**

The number of new fields in which professional mathematicians find employment grows continually. This department prepares students for careers in industry, government and education.

The M.S. in mathematics prepares students for Ph.D. work, in addition to providing a terminal degree for those planning to enter industry or education. The aim of the Ph.D. program is to provide the student with the expertise to accomplish significant research in applied or pure mathematics, as well as to provide a broad and deep professional education.

In addition to the major programs, the department provides a number of service courses in support of other programs within the university.

Current and detailed information on mathematics degrees and course offerings is available from the department.

The Department of Mathematics and Statistics also offers programs in statistics (p. 312) (see separate listings).

**Degrees**

- M.S., Mathematics (p. 302)
- Ph.D., Mathematics (p. 302)

**M.S., Mathematics**

Complete the following admission requirements:

- Submit three letters of recommendation addressing the applicant’s educational background, mathematical ability, and research and teaching potential.
- Submit undergraduate transcripts.
- Submit a resume and written statement of goals.

**Note:** For admission to the graduate school, students who are non-native speakers of English are required to submit either TOEFL or IELTS scores. While not required, submission of GRE general test scores is recommended.

**Minimum Requirements for Degree: 30-35 credits**

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<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
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<tr>
<td></td>
<td>Complete a written comprehensive exam</td>
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<tr>
<td></td>
<td><strong>Core Courses</strong></td>
<td></td>
</tr>
<tr>
<td>MATH F631</td>
<td>Algebra I</td>
<td>4</td>
</tr>
<tr>
<td>MATH F641</td>
<td>Real Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH F645</td>
<td>Complex Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH F651</td>
<td>Topology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Complete a project or thesis.</td>
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</tr>
</tbody>
</table>

**Ph.D., Mathematics**

Complete the following admission requirements:

- Submit three letters of recommendation addressing the applicant’s educational background, mathematical ability, and research and teaching potential.
- Submit undergraduate and, if applicable, graduate transcripts.
- Submit a resume and written statement of goals.

**Note:** For admission to the graduate school, students who are non-native speakers of English are required to submit either TOEFL or IELTS scores. The GRE mathematics subject test score is not required, but we strongly recommend submitting the score as part of the application.

**Minimum Requirements for Degree: 36 credits**

1. Either submit transcripts indicating the completion of a master’s degree in mathematics or a related area, or compete all the requirements for the M.S. degree in mathematics, including a project or thesis which initiates study of the Ph.D. research area.
2. Pass the Ph.D. qualifying exam.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>General University Requirements</td>
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<td></td>
<td>Ph.D. Degree Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the Ph.D. degree requirements. (p. 258)</td>
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</tr>
</tbody>
</table>

**Mechanical Engineering**

College of Engineering and Mines  
Department of Mechanical Engineering  
907-474-7136  
http://cem.uaf.edu/me/

**M.S. Degree**

Minimum Requirements for Degree: 30 credits

The mission of the mechanical engineering department at UAF is to offer the highest-quality, contemporary education at undergraduate and graduate levels, and to perform research appropriate to the technical needs of the state of Alaska, the nation and the world.

Mechanical engineers conceive, plan, design and direct the manufacturing, distribution and operation of a wide variety of devices, machines and systems for energy conversion, environmental control, materials processing, transportation, materials handling and other purposes. Mechanical engineers are engaged in creative design, applied research, development and management.

The mechanical engineering program prepares its graduates for careers at the professional level; maintains, as a base, ABET accreditation of the undergraduate program; provides continuing educational opportunities for graduate engineers; is a resource of technical knowledge for the state and nation; conducts research in all areas of mechanical engineering including cold regions mechanical engineering; and offers a graduate program in mechanical engineering at the M.S. level.

The educational objectives of the department are that graduates from the mechanical engineering program must be able to apply the knowledge of mathematics, science and engineering; be able to design and conduct experiments, as well as to analyze and interpret data; be able to design a system, component or process to meet desired needs; be able to function on multi-interdisciplinary teams; be able to identify, formulate and solve engineering problems; understand professional and ethical responsibility; be able to communicate effectively; have the broad education necessary to understand the impact of engineering solutions in a global and societal context; recognize the need for, and be able to engage in, life-long learning; understand contemporary issues; and be able to use the techniques, skills and modern engineering tools necessary for engineering practice. The department ensures that each course in the curriculum plays a meaningful role in satisfying one or more of these objectives.

**Degree**

- M.S., Mechanical Engineering (p. 303)

**M.S., Mechanical Engineering**

- Complete the following admission requirement:

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
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<td></td>
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<td></td>
<td>Master’s Degree Requirements</td>
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<td></td>
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<tr>
<td></td>
<td>Program Requirements</td>
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<tr>
<td>ME F608</td>
<td>Advanced Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME F631</td>
<td>Advanced Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME F634</td>
<td>Advanced Materials Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME F641</td>
<td>Advanced Fluid Mechanics</td>
<td>3</td>
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<td>ME F642</td>
<td>Advanced Heat Transfer</td>
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<tr>
<td></td>
<td>Thesis option</td>
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<tr>
<td></td>
<td>Non-thesis option</td>
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**Options**

**THESIS OPTION**

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<td>ME F699</td>
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<td>Electives</td>
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</table>

1. ME or other engineering, science, or mathematics courses approved by the student’s advisory committee.

**NON-THESIS OPTION**

<table>
<thead>
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<td>ME F698</td>
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<tr>
<td>Electives</td>
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</table>

1. ME or other engineering, science, or mathematics courses approved by the student’s advisory committee.

See Engineering (p. 288) for Ph.D. degree program.

**Mining Engineering**

College of Engineering and Mines  
Department of Mining and Geological Engineering  
907-474-7388  
http://cem.uaf.edu/mingeo/

**M.S. Degree**

Minimum Requirements for Degree: 30-36

The mining engineering program emphasizes engineering as it applies to the exploration and development of mineral resources and upon the economics of the business of mining. The program offers specialization in exploration, mining or mineral beneficiation.

Students are prepared for job opportunities with mining and construction companies, consulting and research firms, equipment manufacturers,
investment and commodity firms in the private sector, as well as with state and federal agencies.

Mining engineers may aspire to, and achieve, the highest positions in the industry: operating or engineering management, government agency director or entrepreneur.

**Degree**

- M.S., Mining Engineering (p. 304)

**M.S., Mining Engineering**

**Thesis Option**

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
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<td></td>
<td>Master's Degree Requirements</td>
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<tr>
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<td>MIN F600-level courses</td>
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<tr>
<td>Technical electives</td>
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<td>Thesis</td>
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**Non-Thesis Option**

Minimum Requirements for Degree: 36 credits

<table>
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<tr>
<td></td>
<td>Master's Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the master's degree requirements. (p. 257)</td>
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<td>Program Requirements</td>
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<td>Complete the following:</td>
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<td>MIN F688</td>
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<tr>
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**Natural Resources and Environment**

School of Natural Resources and Extension
907-474-7188
http://www.uaf.edu/snre/

**M.S., M.N.R.E. Degrees**

Minimum Requirements for Degrees: M.S.: 30 credits; M.N.R.E.: 35 credits

The two master’s degrees offered by the School of Natural Resources and Extension are designed for students desiring careers in resources management and students planning doctoral work, as well as those wishing to be better-informed citizens. The courses and curriculum for the two degrees were developed in cooperation with groups and agencies that work professionally with resource management in Alaska. These agencies, including the Alaska Department of Natural Resources, Alaska Department of Fish and Game, Agricultural Research Service, U.S. Forest Service, Bureau of Land Management, Natural Resources Conservation Service, and U.S. Fish and Wildlife Service contribute significantly to the programs by providing guest lecturers and internship and research opportunities for students.

Because of the diversity and broad scope of the field, each degree is customized according to the student’s interests and advisory committee’s recommendations. Student research projects and theses have typically been in the fields of forest management, land use planning, soil management, natural resource policy, range management, parks and recreation management, horticulture, agronomy, animal science, climate change and GIS.

A Bachelor of Science or Bachelor of Arts degree in a relevant discipline is required for acceptance into either program. Candidates should have general familiarity with the major resource fields. The student’s committee may require the student to take courses to remedy any deficiencies; these credits will not count toward the credits required for the degree.

Applicants must submit three letters of recommendation, official GRE scores, undergraduate transcripts and a statement of the applicant’s goals. The latter should include information about why you are applying for the degree, why you chose UAF and SNRE, and how such a degree would fit into your career goals. Applications cannot be considered until all these items have been received by the Office of Admissions.

The M.S. degree in natural resources and environment is designed for those intending to pursue a career conducting research in management problems and/or to proceed on to a doctoral program. Thesis research in natural resources and environment is directed toward resource problems and based on hypothesis testing.

The master’s degree in natural resources and environment is designed to prepare students for a management career in natural resources planning and administration; communication and public information; and/or operational innovation, improvement and impact assessment. While not requiring scientific research, the work is expected to involve critical reflection, empirical inquiry and intellectual honesty. A written product and an oral presentation demonstrating sound scholarship will be required. Final acceptance of the project will be by the student’s committee and the director of academic programs of SNRE.

**Degrees**

- M.S., Natural Resources and Environment (p. 305)
- M.N.R.E., Natural Resources and Environment (p. 304)

**M.N.R.E., Natural Resources and Environment**

Minimum Requirements for Degree: 35 credits

<table>
<thead>
<tr>
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<td>Complete the master’s degree requirements. (p. 257)</td>
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<td></td>
<td>Program Requirements</td>
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</table>
M.S., Natural Resources and Environment

Minimum Requirements for Degree: 30 credits

<table>
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<th>Title</th>
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<tr>
<td>NRM F601</td>
<td>Research Methods in Natural Resources Management (or an approved research methods course)</td>
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<tr>
<td>NRM F698</td>
<td>Non-thesis Research/Project</td>
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</tr>
<tr>
<td></td>
<td>Statistics course at the F400 level or above</td>
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<td>Complete one of the following:</td>
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<tr>
<td>NRM F667</td>
<td>Resilience Seminar I</td>
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<tr>
<td>NRM F668</td>
<td>Resilience Seminar II</td>
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<tr>
<td>NRM F692</td>
<td>Graduate Seminar</td>
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</tr>
<tr>
<td></td>
<td>Additional approved courses as needed to total 30 credits</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Complete and successfully defend the project.</td>
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</tbody>
</table>

1. Requirement may be met with a research methods course in a discipline related to natural resources management.
2. Requirement may be met with a statistics course in mathematical sciences or in a discipline related to natural resources management.
3. These courses will be approved by the student’s committee and the SNRE dean. Up to 9 of these credits may be F400-level courses.

Ph.D. Degree

Minimum Requirements for Degree: 26 credits

The joint Ph.D. program in natural resources and sustainability prepares future leaders as academic researchers, agency professionals and analysts of nongovernmental organizations and communities for careers at the frontiers of science in the management of natural resources and environment.

Exploring and understanding natural resource management systems require a well-defined skill set and a clear understanding of how specific problems are linked to broader cultural, ecological and geopolitical contexts. Thus, the study of natural resources and sustainability encompasses a spectrum of topics. The Ph.D. builds on the existing strengths of the School of Natural Resources and Extension and School of Management faculty members to educate students in specific areas while training them to be conversant in the broader range of relevant topic areas.

The program objectives and its curriculum center around three thematic areas of study:

1. resource economics,
2. resource policy and sustainability science, and
3. forest and agricultural sciences.

Each student draws on a common set of core courses, and, with his/her graduate committee, develops a program of course work and research that produces a unique intellectual contribution to the applied field of natural resources and sustainability. Students elect to focus on one of the three thematic areas or they choose to integrate foci to develop their areas of knowledge and dissertation research.

Additional application requirement: Students are required to have a faculty sponsor upon entering the program. A letter of support from an SOM or SNRE faculty member in addition to three letters of recommendation must be submitted with the graduate application.

Degree

- Ph.D., Natural Resources and Sustainability (p. 305)

Ph.D., Natural Resources and Sustainability

Minimum Requirements for Degree: 26 credits (18 thesis credits)

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<tr>
<th>Code</th>
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<tr>
<td></td>
<td>Global to Local Sustainability</td>
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<tr>
<td></td>
<td>Integrated Assessment and Adaptive Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM F692</td>
<td>Graduate Seminar (Complete two semesters)</td>
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<tr>
<td></td>
<td>Outreach activity of one annual public presentation</td>
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Natural Resources and Sustainability

School of Natural Resources and Extension
School of Management
907-474-7188
http://www.uaf.edu/snre/
http://www.uaf.edu/som/
Written and oral comprehensive exams
Dissertation defense seminar
Dissertation defense examination
Doctoral dissertation

Adancement to candidacy occurs when the student demonstrates mastery in understanding sustainability and in-depth knowledge of the student’s dissertation research topic area. Requirements for advancement to candidacy are determined by the academic committee of the student, and shall be consistent with the candidacy requirements for Ph.D. studies at UAF. The basis of the evaluation will be written and oral comprehensive exams.

Oceanography
College of Fisheries and Ocean Sciences
Oceanography Department
907-474-7289
http://www.uaf.edu/cfos/academics/

M.S., Ph.D. Degrees
Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

The M.S. and Ph.D. degrees are offered in several concentration areas of oceanography: physical, chemical, biological, geological and fisheries oceanography.

Oceanography is both interdisciplinary and multidisciplinary. The M.S. and Ph.D. degrees emphasize processes that influence the ocean as a system, including its circulation, composition, biological productivity and geology. Students considering graduate study in oceanography should have a strong background in physics, chemistry, biology, geology or mathematics and a working familiarity with the other subjects.

Opportunities for laboratory and field work are available through the Institute of Marine Science, the research unit of the College of Fisheries and Ocean Sciences. Research facilities are located in Fairbanks, the Seward Marine Center, the Kasitsna Bay Laboratory and Juneau. Facilities include the Ocean Acidification Research Center, the Alaska Stable Isotope Facility, seaside laboratories with running seawater systems, small boats, autonomous undersea vehicles and a variety of instrumentation for research in water circulation, marine particle dynamics, nutrient and trace metal chemistry, genomics, zooplankton ecology and other fields. The College operates the R/V Sikuliaq, a 261-foot ice capable oceanographic research ship owned by the National Science Foundation. Oceanography faculty and students are regular users of Sikuliaq and other ships for high-latitude research, not only in the Alaska region and the Arctic but also in the Antarctic/Southern Ocean, Greenland, the North Pacific and elsewhere.

Degrees
- M.S., Oceanography (p. 306)
- Ph.D., Oceanography (p. 306)

M.S., Oceanography
Complete the following admission requirement:
- Submit GRE scores.

Ph.D., Oceanography

Note: Students are admitted to the graduate program in marine sciences and limnology on the basis of their ability and the capability of the program to meet their particular interests and needs. Applications are considered throughout the year but students should apply by March 1 to have the best chance for admission and financial support for the subsequent fall semester. Assistantship stipends are awarded competitively and limited fellowship support is available. Most students are supported on research projects that relate directly to their degree research.

Concentrations: Biological, Chemical, Fisheries, Geological, Physical

Minimum Requirements for Degree: 30 credits
Students must earn a B- grade or better in the core courses of the degree program before being eligible to take the comprehensive exam.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
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<td>Concentrations</td>
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<td>Complete one from the following concentrations:</td>
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<tr>
<td></td>
<td>Biological, Chemical, Fisheries, Physical Geological</td>
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</table>

Note: Oceanography majors must demonstrate field experience aboard an oceanographic vessel.

Concentrations
BIOLOGICAL, CHEMICAL, GEOLOGICAL, PHYSICAL

Complete the following:

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<td>MSL F620</td>
<td>Physical Oceanography</td>
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<tr>
<td>MSL F630</td>
<td>Geological Oceanography</td>
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<td>MSL F650</td>
<td>Biological Oceanography</td>
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<td>Chemical Oceanography</td>
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<td>MSL F692</td>
<td>Seminar</td>
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<td>MSL F699</td>
<td>Thesis</td>
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Electives open

1 Appropriate to area of concentration

FISHERIES

Complete the following:

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<th>Code</th>
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<tr>
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<tr>
<td>MSL F630</td>
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<td>MSL F640</td>
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<tr>
<td>MSL F660</td>
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</tr>
<tr>
<td>MSL F699</td>
<td>Thesis</td>
<td>open</td>
</tr>
</tbody>
</table>

Electives open
Complete the following admission requirement:

- Submit GRE scores.

Note: Students are admitted to the graduate program in oceanography on the basis of their ability and the capability of the program to meet their particular interests and needs. Applications are considered throughout the year but students should apply by March 1 to have the best chance for admission and financial support for the subsequent fall semester. Assistantship stipends are awarded competitively and limited fellowship support is available. Most students are supported on research projects that relate directly to their degree research.

Note: Oceanography majors must demonstrate field experience aboard an oceanographic vessel.

Petroleum Engineering
College of Engineering and Mines
Department of Petroleum Engineering
907-474-7734
http://cem.uaf.edu/pete/

M.S. Degree
Minimum Requirements for Degree: 30-36 credits

Petroleum engineering offers a unique look at the challenging problems confronting the petroleum industry. This program requires an understanding of many disciplines including mathematics, physics, chemistry, geology and engineering science. Courses in petroleum engineering deal with drilling, formation evaluation, production, reservoir engineering, computer simulation and enhanced oil recovery.

The curriculum prepares graduates to meet the demands of modern technology while emphasizing, whenever possible, the special problems encountered in Alaska. Located in one of the largest oil-producing states in the nation, the UAF petroleum engineering department offers modern and challenging degree programs.

The M.S. program is intended to provide students with an advanced treatment of petroleum engineering concepts. Students may choose either a thesis or non-thesis option. Research and teaching assistantships are available.

A doctoral degree program is offered with concentration in petroleum engineering for qualified students (see Engineering (p. 288)). Contact the graduate program coordinator or the petroleum engineering department for more information.

Degree

- M.S., Petroleum Engineering (p. 307)

M.S., Petroleum Engineering

Complete the following admission requirement:

a. Complete a B.S. degree in engineering or the natural sciences.

Minimum Requirements for Degree: 30-36 credits

<table>
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<th>Code</th>
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<th>Credits</th>
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<tr>
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<td>PETE F608</td>
<td>Flow Assurance in the Petroleum Industry</td>
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</tr>
<tr>
<td>PETE F610</td>
<td>Advanced Reservoir Engineering</td>
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<tr>
<td>PETE F621</td>
<td>Applied Reservoir Characterization</td>
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<td>PETE F630</td>
<td>Waterflooding</td>
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<tr>
<td>PETE F645</td>
<td>Petroleum Geology</td>
<td>3</td>
</tr>
<tr>
<td>PETE F656</td>
<td>Advanced Petroleum Economic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PETE F661</td>
<td>Applied Well Testing</td>
<td>3</td>
</tr>
<tr>
<td>PETE F662</td>
<td>Enhanced Oil Recovery</td>
<td>3</td>
</tr>
<tr>
<td>PETE F663</td>
<td>Applied Reservoir Simulation</td>
<td>3</td>
</tr>
<tr>
<td>PETE F665</td>
<td>Advanced Phase Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PETE F666</td>
<td>Drilling Optimization</td>
<td>3</td>
</tr>
<tr>
<td>PETE F670</td>
<td>Fluid Flow Through Porous Media</td>
<td>3</td>
</tr>
<tr>
<td>PETE F680</td>
<td>Horizontal Well Technology</td>
<td>3</td>
</tr>
<tr>
<td>PETE F683</td>
<td>Natural Gas Processing and Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PETE F685</td>
<td>Non-Newtonian Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PETE F689</td>
<td>Multiphase Fluid Flow in Pipes</td>
<td>3</td>
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</tbody>
</table>

Options

Complete the requirements for one of the following options: 18-24

Thesis Option
Non-Thesis Option

Options

THESIS OPTION

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PETE F699</td>
<td>Thesis</td>
<td>6</td>
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</tbody>
</table>

Elective courses ¹

¹ Electives are chosen with approval of graduate advisory committee.
NON-THESIS OPTION

Minimum Requirements for Degree: 36 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PETE F698</td>
<td>Non-thesis Research/Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Electives 2 18

2 Electives are chosen with approval of graduate advisory committee.

Physics

College of Natural Science and Mathematics
Department of Physics
907-474-7339
http://www.uaf.edu/physics/

M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.S.: 30-33 credits; Ph.D.: 18 thesis credits

Advanced study at the graduate level is offered in various areas of physics and applied physics, including many of the research specialties found at the UAF’s Geophysical Institute. Faculty and student research programs currently emphasize space physics, infrasonics, complex dynamics of nonlinear systems, ice physics and condensed matter physics.

The M.S. degree with computational physics concentration provides expertise in advanced computing environments, in the relevant mathematical foundations and in the specific physics discipline. It is directed toward students with undergraduate academic backgrounds in physics or other closely associated fields, such as engineering, that have the appropriate physics course work. This degree is relevant for students seeking careers in any areas that require expertise in computational modeling and simulation of physical systems.

The M.S. degree with space physics concentration focuses on the physics of upper atmospheres, ionospheres, magnetospheres and the interplanetary medium. It includes core physics courses and specialty courses in space physics, aeronomy, magnetospheric and auroral physics, and advanced plasma physics. The specialty courses support graduate research with faculty members at UAF’s Geophysical Institute, and include areas such as numerical simulations and time-series analysis. Additional courses such as radiative transfer and physics of fluids provide added breadth.

Master’s Degrees

• M.S., Physics (p. 308)
• M.S., Physics with Computational Physics Concentration (p. 308)
• M.S., Physics with Space Physics Concentration (p. 309)

Ph.D. Degree

• Ph.D., Physics (p. 309)

M.S., Physics with Computational Physics Concentration

Minimum Requirements for Degree: 30-33 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F611</td>
<td>Mathematical Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F612</td>
<td>Mathematical Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS F621</td>
<td>Classical Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS F622</td>
<td>Statistical Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS F631</td>
<td>Electromagnetic Theory</td>
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</tr>
<tr>
<td>PHYS F632</td>
<td>Electromagnetic Theory</td>
<td></td>
</tr>
<tr>
<td>PHYS F651</td>
<td>Quantum Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS F652</td>
<td>Quantum Mechanics</td>
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</table>

THESIS OPTION

Minimum Requirements for Degree: 30 credits 1

<table>
<thead>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
</tbody>
</table>

Complete 12 credits from the following:

Approved PHYS F600-level courses
Approved ATM F600-level courses

NON-THESIS OPTION

Minimum Requirements for Degree: 33 credits 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F698</td>
<td>Non-thesis Research/Project</td>
<td>3-6</td>
</tr>
</tbody>
</table>

Complete 18 credits from approved courses 18

1 At least 24 credits must be regular course work.
2 At least 30 credits must be regular course work.

M.S., Physics with Computational Physics Concentration

Minimum Requirements for Degree: 30-33 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F611</td>
<td>Mathematical Physics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS F612</td>
<td>Mathematical Physics II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS F629</td>
<td>Methods of Numerical Simulation in Fluids and Plasma</td>
<td>3</td>
</tr>
</tbody>
</table>
Complete at least 3 credits from the following: 3

- Approved MATH F600-level courses (excluding MATH F611/PHYS F611 and PHYS F612)
- Approved CS F600-level courses

Complete 6 credits of approved PHYS F600-level courses 6

**Thesis or Non-Thesis Option**

Complete the thesis or non-thesis option 12-18

**THESIS OPTION**

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
<tr>
<td>Complete 6 credits from approved PHYS F600-level courses</td>
<td>6</td>
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</tbody>
</table>

**NON-THESIS OPTION**

**Minimum Requirements for Degree: 33 credits**

1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F698</td>
<td>Non-thesis Research/Project</td>
<td>3-6</td>
</tr>
<tr>
<td>Complete 9 credits from approved PHYS F600-level courses</td>
<td>9</td>
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</tbody>
</table>

1 At least 30 credits must be regular course work.

**M.S., Physics with Space Physics Concentration**

**Minimum Requirements for Degree: 30-33 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F626</td>
<td>Fundamentals of Plasma Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS F627</td>
<td>Advanced Plasma Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS F629</td>
<td>Methods of Numerical Simulation in Fluids and Plasma</td>
<td></td>
</tr>
<tr>
<td>PHYS F672</td>
<td>Magnetospheric Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS F673</td>
<td>Space Physics</td>
<td></td>
</tr>
</tbody>
</table>

**Thesis or Non-Thesis Requirements**

Complete the thesis or non-thesis option 18-24

**THESIS OPTION**

**Minimum Requirements for Degree: 30 credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
<tr>
<td>Complete 12 credits from the approved PHYS F600-level courses</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**Ph.D., Physics**

**Minimum Requirements for Degree: 18 thesis credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
</tbody>
</table>

**Complete 18 hours from approved PHYS F600-level courses**

1 At least 30 credits must be regular course work.

**Ph.D., Physics, Space**

**Minimum Requirements for Degree: 18 thesis credits**

1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS F698</td>
<td>Non-thesis Research/Project</td>
<td>3-6</td>
</tr>
</tbody>
</table>

**Complete in accordance with the Physics Department’s policies and procedures manual for graduate students.**

**Physics, Space**

College of Natural Science and Mathematics
Department of Physics
907-474-7339
http://www.uaf.edu/physics/

**Ph.D. Degree**

Minimum Requirements for Degree: 18 thesis credits

Space physics focuses on the physics of upper atmospheres, ionospheres, magnetospheres and the interplanetary medium. It includes core physics courses and specialty courses in space physics, aeronomy, magnetospheric and auroral physics, and advanced plasma physics. The specialty courses support graduate research with faculty members at UAF’s Geophysical Institute, and include areas such as numerical simulations and time-series analysis. Additional courses such as radiative transfer and physics of fluids provide added breadth.

See Physics. (p. 308)

**Degree**

- Ph.D., Physics, Space (p. 309)
Complete and pass a written and oral comprehensive examination.

1 Complete in accordance with the Physics Department’s policies and procedures manual for graduate students.

Resilience and Adaptation

Resilience and Adaptation Studies
Graduate School
907-474-7029
http://www.uaf.edu/rap/

Graduate Certificate

Minimum Requirements for Certificate: 12 credits

As a postbaccalaureate program, the certificate in resilience and adaptation studies is ideal for current graduate students in many disciplines. The graduate certificate encourages a more in-depth study of resilience, adaptation and sustainability and provides students a credential recognizing their knowledge of resilience theory and its application to sustainable systems. The certificate prepares students for careers in academia, industry, government and nongovernmental organizations by exposing them to the interdisciplinarity of complex systems.

As a postbaccalaureate program, the certificate in resilience and adaptation studies requires admission as a graduate student to an established masters or doctoral program at UAF. Students may receive the certificate without or prior to completing their graduate degree. This certificate will be available to all accepted graduate students, regardless of discipline. It is a defined series of courses that exposes the students to the concepts of resilience and adaptation. While associated with the Resilience and Adaptation Program, it is not necessary to be a RAP fellow to earn the certificate. Courses will advance knowledge and promote social-ecological research in sustainability and resilience. Students working on degrees in the sciences and social sciences will broaden their disciplinary perspective using other disciplines such as economics, ecology, sociology, and culture to gain practical knowledge, training and integrative skill development. This certificate embodies a holistic perspective that recognizes the importance of both the social and biological dimensions of environmental sustainability and resilience. This certificate is offered by the Graduate School's Resilience and Adaptation Program and will meet the needs of students and professionals.

Applying students must complete the following prior to admission:

1. Hold a baccalaureate degree (B.A. or B.S.) with a minimum 3.0 GPA from an accredited institution
2. Submit a statement of academic goals, three letters of recommendation and GRE scores

Minimum requirement for certificate: 12 credits

Students must earn a B or Pass grade (or better) in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F616</td>
<td>Anthropologic Background for Resilience and Adaptation</td>
<td>1</td>
</tr>
<tr>
<td>BIOL F616</td>
<td>Ecological Background for Resilience and Adaptation</td>
<td>1</td>
</tr>
<tr>
<td>ECON F616</td>
<td>Economics Background for Resilience and Adaptation</td>
<td>1</td>
</tr>
<tr>
<td>LAS F601</td>
<td>Responsible Conduct of Research</td>
<td>2</td>
</tr>
<tr>
<td>NRM F667</td>
<td>Resilience Seminar I</td>
<td>1</td>
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<tr>
<td>Approved electives</td>
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<tr>
<td>Total Credits</td>
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<td>12</td>
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</tbody>
</table>

Rural Development

College of Rural and Community Development
Department of Alaska Native Studies and Rural Development
907-474-6528 Toll free 1-866-478-2721
http://www.uaf.edu/danrd/ma-program/

M.A. Degree

Minimum Requirements for Degree: 30 credits

The Department of Alaska Native Studies and Rural Development M.A. program is designed to educate leaders who understand the dynamic relationship of rural Alaska with the global economy and who have professional skills in areas of leadership, business development, administration and conflict management. Graduates typically take positions with tribal and municipal governments, fisheries, tourism, Native corporations, regional health corporations or non-profits, state/federal agencies, or other private businesses.

Graduate degree students gain a broader theoretical understanding of development processes in Alaska and the circumpolar North. Graduate students complete a thesis or applied community development project, and have opportunities for international study and research.

Students can earn the M.A. degree either on the Fairbanks campus or through distance delivery. Special application requirements and deadlines apply for distance M.A. degree programs. For more information contact the department toll free 1-866-478-2721 or visit http://www.uaf.edu/danrd/ma-program/.

Degree

- M.A., Rural Development (p. 310)

M.A., Rural Development

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credits</td>
</tr>
<tr>
<td>General University Requirements</td>
<td>Complete the general university requirements. (p. 254)</td>
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</tr>
<tr>
<td>Graduate Certificate Requirements</td>
<td>Complete the graduate certificate requirements. (p. 257)</td>
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<tr>
<td>Program Requirements</td>
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<tr>
<td>RD F600</td>
<td>Circumpolar Indigenous Leadership Symposium</td>
<td>3</td>
</tr>
<tr>
<td>RD F601</td>
<td>Political Economy of the Circumpolar North</td>
<td>3</td>
</tr>
</tbody>
</table>
RD F625  Community Development Strategies: Principles and Practices  3
RD F650  Community-based Research Methods  3
RD F651  Management Strategies for Rural Development  3

Complete 9-12 elective credits at the F600 level of the following: 9-12

ANTH F610  Northern Indigenous Peoples and Contemporary Issues
CCS F608  Indigenous Knowledge Systems
RD F425  Cultural Resource Issues
RD F652  Indigenous Organization Management
RD F655  Circumpolar Health Issues

Complete one of the following: 6-9
Research Project
Thesis

1 Up to 6 credits may be at the F400 level with approval from the graduate committee

Science Teaching and Outreach

College of Natural Science and Mathematics
Department of Biology and Wildlife
907-474-7671
http://www.bw.uaf.edu

Graduate Certificate

Minimum Requirements for Certificate: 12 credits

The certificate in science teaching and outreach is a voluntary program that prepares science graduate students for science careers that include teaching and/or communicating science to the public. It does NOT meet the requirements for earning a state teaching certificate and will not allow graduates to apply for certified positions in the K-12 school system. The science teaching and outreach certificate will enhance readiness for college-level teaching by providing hands-on training and familiarity with pedagogical theory. The certificate is expected to increase competitive ability in the higher-education job market.

Graduate Certificate

- Graduate Certificate, Science Teaching and Outreach (p. 311)

Graduate Certificate, Science Teaching and Outreach

Minimum Requirements for Certificate: 12 credits

Code  Title  Credits
General University Requirements
Complete the general university requirements. (p. 254)

Program Requirements
Have a bachelor's degree from an accredited institution.
Admission to a graduate science or engineering degree program at UAF (CEM, CFOS, CNSM, SNRE), or prior completion of a graduate degree in the sciences or engineering.

STO F601  Communicating Science  2
STO F602  Mentoring in the Sciences  2
STO F603  Instructional Design  1
STO F604  Science Teaching and Outreach Internship  4
STO F666  Scientific Teaching Internship  2

Complete one of the following: 1

MATH F600  Teaching Seminar
PHYS F605  Physics Teaching Seminar/Practicum
STO F692  Current Topics in Scientific Teaching

Security and Disaster Management

School of Management
Department of Homeland Security and Emergency Management
907-474-7461
http://www.uaf.edu/som/degrees/graduate/msdm/

M.S.D.M. Degree

Minimum Requirements for Degree: 30 credits

The online master of security and disaster management program serves both aspiring and existing homeland defense/security and emergency management practitioners. The program builds upon the experience and education of those within this highly interdisciplinary enterprise, providing graduate-level education that focuses on supporting the operational and strategic needs of those leading and managing in today's highly complex world. Leveraging the education provided in the bachelor of security and emergency management degree, the master's degree requires a greater synthesis and integration of the critical thinking and analysis skills required for managers and leaders in homeland defense/security and emergency management and associated fields.

The primary objectives of the program are to: prepare students for leadership and management roles in homeland security and emergency management; identify best practices for integrating community planning, security and aspects of prevention and mitigation when preparing communities and regions for a disaster; underscore the need to adopt and manage an "all hazards" approach to preparing for and managing disasters at the tactical, operational and strategic levels of the HSEM enterprise; and develop critical thinking skills, analytical abilities and leadership/management capacity to serve at the executive level in public and private sector organizations.

Applications are reviewed on a continual basis.

Degree

- M.S.D.M., Security and Disaster Management (p. 311)

M.S.D.M., Security and Disaster Management

- Complete the following admission requirements:
  - Students with a GPA above 2.75 will be required to submit a score from the Watson-Glaser Critical Thinking Exam.
  - Any students with a GPA lower then 2.75 will be required to submit scores from either the GRE or the GMAT.
This course will not count toward the M.S.D.M. program requirements.

- In addition, students without a UAF B.S.E.M. degree will be required to take HSEM F412: Emergency Planning and Preparedness prior to taking HSEM F605: Community Planning. This course may be used to meet one of the elective requirements for the M.S.D.M.

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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<tr>
<td></td>
<td>Complete the general university requirements.</td>
<td>(p. 254)</td>
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<td></td>
<td>Master’s Degree Requirements</td>
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<tr>
<td></td>
<td>Complete the master’s degree requirements.</td>
<td>(p. 257)</td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>Program Requirements ¹</td>
<td></td>
</tr>
<tr>
<td>HSEM F601</td>
<td>Legal Aspects of Homeland Security</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F603</td>
<td>Disaster Management Policy</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F605</td>
<td>Community Planning in Emergency Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F607</td>
<td>Vulnerability and Protection</td>
<td>3</td>
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<td>HSEM F609</td>
<td>Human Security</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F622</td>
<td>Project Management</td>
<td>3</td>
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<tr>
<td>HSEM F665</td>
<td>Strategic Collaboration</td>
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<td>HSEM F690</td>
<td>Security and Disaster Management</td>
<td>3</td>
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<td></td>
<td>Complete 6 credits from the following:²</td>
<td>6</td>
</tr>
<tr>
<td>HSEM F613</td>
<td>International Disaster Management</td>
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<tr>
<td>HSEM F692</td>
<td>Security and Disaster Management Seminar</td>
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<td></td>
<td>Any F400-level HSEM course not taken as an</td>
<td></td>
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<tr>
<td></td>
<td>undergraduate ³</td>
<td></td>
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</tbody>
</table>

¹ Students with two C's, one D or one F in courses that are part of the HSEM program will not be in good standing even if their cumulative GPA is at or above 3.0. HSEM students who are not in good standing will be subject to review and may be dismissed by the HSEM committee. Students may not use more than two F600-level courses with C grades on the advancement-to-candidacy application.

² Up to six 400- or graduate-level credits may be transferred from the National Fire Academy, FBI National Academy, Command and General Staff College, or similar programs approved by the American Council on Education, as substitutes.

³ An A or B grade must be earned in F400-level courses.

Special Education

School of Education
907-474-7341
http://www.uaf.edu/educ/

Students may earn a graduate-level, postbaccalaureate certificate and Master of Education degree in special education. See Education (p. 273) for information.

Statistics

College of Natural Science and Mathematics
Department of Mathematics and Statistics
907-474-7332

http://www.uaf.edu/dms/

Graduate Certificate, M.S. Degree

Minimum Requirements for Certificate: 12 credits; M.S.: 30 credits

Statistics is a collection of methods and theories used to make decisions or estimate unknown quantities from incomplete information. Statistical techniques are useful, for example, in estimating plant, animal and mineral abundances; forecasting social, political and economic trends; planning field plot experiments in agriculture; performing clinical trials in medical research; and maintaining quality control in industry. Employment opportunities are excellent for statisticians in many of these areas.

As a postbaccalaureate program, the certificate in statistics is equivalent to a full year of graduate statistics courses and is ideal for current graduate students in disciplines other than statistics (especially the sciences). The graduate certificate in statistics encourages a more in-depth study of statistics and provides students a credential recognizing their quantitative expertise.

The M.S. degree program in statistics builds upon UAF’s strength in the sciences and our setting in Alaska by introducing a strong quantitative alternative or supplement to existing programs. The curriculum is built around four statistics core courses and flexibility in selection of elective courses. The core courses are designed to blend mathematical statistics course work typical of most M.S. programs in statistics with real applications. We believe this blending provides a substantial improvement in the graduate’s skills.

Graduates of this program could be labeled quantitative biologists, biometricians, quantitative geologists, geostatisticians, or mathematical statisticians depending upon their specific course work. In addition, this program prepares individuals for Ph.D.-level work in statistics or their area of application.

The statistics program is administered by the Department of Mathematics and Statistics.

Degree

- M.S., Statistics (p. 313)

Graduate Certificate

- Graduate Certificate, Statistics (p. 312)

Graduate Certificate, Statistics

- Complete the following admission requirements:
  - Hold a baccalaureate degree from an accredited institution
  - Complete Calculus I (MATH F251X), Calculus II (MATH F252X) and Calculus III (MATH F253X)¹
  - Complete Regression and Analysis of Variance (STAT F401) or equivalent ¹. Students without this requirement may be admitted into the program with a deficiency but will be required to complete STAT F401 as part of the requirements of the certificate.

¹ Students must earn a C or better in each course.

Minimum Requirements for Degree: 12 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete the general university requirements.</td>
<td>(p. 254)</td>
</tr>
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</tbody>
</table>

¹ Students with two C's, one D or one F in courses that are part of the HSEM program will not be in good standing even if their cumulative GPA is at or above 3.0. HSEM students who are not in good standing will be subject to review and may be dismissed by the HSEM committee. Students may not use more than two F600-level courses with C grades on the advancement-to-candidacy application.

² Up to six 400- or graduate-level credits may be transferred from the National Fire Academy, FBI National Academy, Command and General Staff College, or similar programs approved by the American Council on Education, as substitutes.

³ An A or B grade must be earned in F400-level courses.
Complete the general university requirements. (p. 254)

Graduate Certificate Requirements
Complete the graduate certificate requirements. (p. 257)

STAT F651 Statistical Theory I 2 3
or MATH F408 Mathematical Statistics

Complete two from the following: 1 6-8
STAT F461 Applied Multivariate Statistics
STAT F602 Experimental Design
STAT F605 Spatial Statistics
STAT F611 Time Series
STAT F621 Distribution-free Statistics
STAT F631 Categorical Data Analysis
STAT F641 Bayesian Statistics
STAT F642 Bayesian Decision Theory for Resource Management
STAT F651 Statistical Theory I 2
STAT F652 Statistical Theory II 2
STAT F653 Statistical Theory III: Linear Models
STAT F661 Sampling Theory

Complete one or more from the following electives to total 12 credits for the certificate:
ECON F626 Econometrics
ECON F627 Advanced Econometrics
FISH F604 Modern Applied Statistics for Fisheries
FISH/WLF F625 Population Dynamics of Vertebrates
FISH F627 Statistical Computing with R
FISH F631 Data Analysis in Community Ecology
MATH F614 Numerical Linear Algebra
or MATH F641 Real Analysis
or MATH F660 Advanced Mathematical Modeling
or MATH F661 Optimization
MIN/GE F635 Advanced Geostatistical Applications
PETE F687 Experimental and Data Analysis Methods in Petroleum Engineering
PHYS F628 Digital Time Series Analysis

Complete the master's degree requirements. (p. 257)

Statistics Core Courses

Statistical Theory I
Statistical Theory II
Statistical Theory III: Linear Models
Non-thesis Research/Project

Complete two of the following:

ECON F626 Econometrics
ECON F627 Advanced Econometrics
FISH F604 Modern Applied Statistics for Fisheries
FISH/WLF F625 Population Dynamics of Vertebrates
FISH F627 Statistical Computing with R
FISH F631 Data Analysis in Community Ecology
MATH F614 Numerical Linear Algebra
or MATH F641 Real Analysis
or MATH F660 Advanced Mathematical Modeling
or MATH F661 Optimization
MIN/GE F635 Advanced Geostatistical Applications
PETE F687 Experimental and Data Analysis Methods in Petroleum Engineering
PHYS F628 Digital Time Series Analysis

Students working in subject areas involving significant non-English literature will be expected to read the appropriate foreign language.

Note: Each student must take and pass a two-part comprehensive exam. The first part, written by the statistics faculty, is a written exam (not a take-home exam) covering the material in the core statistics courses. The second part is an oral exam covering follow-up questions from the written exam as well as any material from courses the student has taken along with their project.

Water and Environmental Science

College of Engineering and Mines
Department of Civil and Environmental Engineering
907-474-6129
http://cem.uaf.edu/cee/

M.S. Degree

Minimum Requirements for Degree: 30 credits

The water and environmental science program offers an M.S. degree for students with a background in science or engineering. The committee

- Must have completed the following courses or their equivalent with a B grade or better: full calculus sequence (Calculus I (MATH F251X), Calculus II (MATH F252X), Calculus III (MATH F253X)); note that students substituting Essential Calculus with Applications (MATH F230X) for Calculus I must take MATH F252X and MATH F253X before acceptance; a course in linear algebra (MATH F314); at least one introductory statistics or probability course (STAT F200X, STAT F300 or MATH F371, MATH F408); and Regression and Analysis of Variance (STAT F401). Students lacking MATH F314 or STAT F401 may be accepted on probation.

Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT F651</td>
<td>Statistical Theory I</td>
<td>3</td>
</tr>
<tr>
<td>STAT F652</td>
<td>Statistical Theory II</td>
<td>4</td>
</tr>
<tr>
<td>STAT F653</td>
<td>Statistical Theory III: Linear Models</td>
<td>3</td>
</tr>
<tr>
<td>STAT F654</td>
<td>Statistical Consulting Seminar</td>
<td>1</td>
</tr>
<tr>
<td>STAT F698</td>
<td>Non-thesis Research/Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete at least 6 credits of approved courses from an application area or courses with substantial statistical and/or mathematical content. 1

1 Excluding STAT F698, STAT F654, STAT F692, STAT F692A and STAT F692P.

2 No more than two of the following courses can be used towards the certificate: MATH F408, STAT F651 or STAT F652.

M.S., Statistics

- Complete the following admission requirements:
- Submit three letters of recommendation concerning the applicant’s educational background and quantitative training.
- Submit complete transcripts for all college-level work.
- Submit a resume.
- Submit a written statement of goals.
- The applicant must have completed a bachelor’s degree from an accredited institution with a GPA of at least 3.0.
chair has to be a civil and environmental engineering faculty member or an Institute of Northern Engineering research faculty. At least one committee member must be civil and environmental engineering faculty to oversee the student’s academic program.

Career opportunities for graduates include hydrology, water supply, treatment and distribution, waste treatment, water and air pollution, solid waste disposal, hazardous and toxic waste management, pollution prevention, environmental impact evaluation, administration of environmental programs and regulatory compliance. Graduates are prepared to hold positions in government, industry, consulting or academia.

### Degree

- M.S., Water and Environmental Science (p. 314)

### M.S., Water and Environmental Science

- Complete the following admission requirements:
  
  a. Complete a B.S. in natural science with a GPA of 3.0 or higher, or a B.S. in engineering from an ABET-accredited institution with a GPA of 3.0 or higher.
  
  b. Complete the TOEFL exam (only required of non-native English speakers. The minimum score required is 79 for the internet, or 213 for the computerized test).
  
  c. Submit GRE scores.

### Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
<td></td>
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<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
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</tr>
<tr>
<td></td>
<td>Master’s Degree Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the master’s degree requirements. (p. 257)</td>
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</tr>
<tr>
<td></td>
<td>Program Requirements</td>
<td></td>
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<tr>
<td></td>
<td>Complete one from following concentrations:</td>
<td>21-27</td>
</tr>
<tr>
<td></td>
<td>Environmental Contaminants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental Science and Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Supply and Waste Treatment</td>
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</table>

### Concentrations

#### ENVIRONMENTAL CONTAMINANTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Complete the following:</td>
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<tr>
<td>CE F601</td>
<td>Engineering Research Communication</td>
<td>3</td>
</tr>
<tr>
<td>CE F663</td>
<td>Groundwater Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F641</td>
<td>Aquatic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F642</td>
<td>Contaminant Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F647</td>
<td>Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F649</td>
<td>Hazardous and Toxic Waste Management</td>
<td>3</td>
</tr>
</tbody>
</table>

#### WATER SUPPLY AND WASTE TREATMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td></td>
<td>Complete the following:</td>
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<td>Engineering Research Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F641</td>
<td>Aquatic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F643</td>
<td>Air Pollution Management</td>
<td>3</td>
</tr>
<tr>
<td>or ENVE F649</td>
<td>Hazardous and Toxic Waste Management</td>
<td></td>
</tr>
<tr>
<td>ENVE F645</td>
<td>Unit Processes: Chemical and Physical</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F646</td>
<td>Biological Unit Processes</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F647</td>
<td>Biotechnology</td>
<td>3</td>
</tr>
</tbody>
</table>

Approved electives (3 credits for thesis; 9 credits for project) 3-9

Total Credits 21-27

1 In addition to ENVE courses, recommended courses include: BIOL F657, BIOL F680, CE F603, CE F661, CE F683, CE F684, CHEM F609, CHEM F631, CHEM F655, GE F620 and MATH F615.

### ENVIRONMENTAL SCIENCE AND MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
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<tr>
<td></td>
<td>Complete five from the following:</td>
<td>15</td>
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<tr>
<td>ENVE F641</td>
<td>Aquatic Chemistry</td>
<td></td>
</tr>
<tr>
<td>ENVE F644</td>
<td>Environmental Management and Permitting</td>
<td></td>
</tr>
<tr>
<td>ENVE F647</td>
<td>Biotechnology</td>
<td></td>
</tr>
<tr>
<td>ENVE F649</td>
<td>Hazardous and Toxic Waste Management</td>
<td></td>
</tr>
<tr>
<td>ENVE F651</td>
<td>Environmental Risk Assessment</td>
<td></td>
</tr>
<tr>
<td>ENVE F652</td>
<td>Introduction to Toxicology for Engineers and Scientists</td>
<td>3-9</td>
</tr>
</tbody>
</table>

Approved electives (3 credits for thesis; 9 credits for project) 3-9

1 In addition to ENVE courses, recommended courses include: BIOL F657, BIOL F680, CE F603, CE F661, CE F683, CE F684, CHEM F609, CHEM F631, CHEM F655, GE F620 and MATH F615.

### HYDROLOGY

<table>
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<tr>
<th>Code</th>
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<tbody>
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<td></td>
<td>Complete the following:</td>
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</tr>
<tr>
<td>CE F601</td>
<td>Engineering Research Communication</td>
<td>3</td>
</tr>
<tr>
<td>CE F663</td>
<td>Open Channel and River Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE F663</td>
<td>Groundwater Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CE F665</td>
<td>Introduction to Watershed Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>CE F683</td>
<td>Arctic Hydrology and Hydraulic Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Approved electives (6 credits for thesis; 12 credits for project) 6-12

1 Recommended electives include: CE F445, CE F603, CE F661, CE F664, ENVE F641, ENVE F642, ENVE F644, BIOL F473, BIOL F483, NRM F435, NRM F670, GEOS F616, GEOS F617, GEOS F631 and GEOS F694.

### WATER SUPPLY AND WASTE TREATMENT

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Complete the following:</td>
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<tr>
<td>CE F601</td>
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</tr>
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<td>Aquatic Chemistry</td>
<td>3</td>
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<td>ENVE F643</td>
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<td>or ENVE F649</td>
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<tr>
<td>ENVE F645</td>
<td>Unit Processes: Chemical and Physical</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F646</td>
<td>Biological Unit Processes</td>
<td>3</td>
</tr>
<tr>
<td>ENVE F647</td>
<td>Biotechnology</td>
<td>3</td>
</tr>
</tbody>
</table>

Approved electives (3 credits for thesis; 9 credits for project) 3-9
In addition to ENVE courses, recommended courses include: BIOL F657, BIOL F680, CE F603, CE F661, CE F683, CE F684, CHEM F609, CHEM F631, CHEM F655, GE F620 and MATH F615.

Wildlife Biology and Conservation

College of Natural Science and Mathematics
Department of Biology and Wildlife
907-474-7671
http://www.bw.uaf.edu

M.S. Degree

Minimum Requirements for Degree: 30 credits

The geographic location of the university is particularly advantageous for the study of wildlife biology. Spruce forest, aspen-birch forest, alpine tundra, bogs and several types of aquatic habitats are within easy reach. Studies can be made in many other habitats ranging from the dense forests of southeastern Alaska to Arctic tundra.

Adequate study collections of plants and animals are available, and a 2,000-acre study area is near the campus. Wildlife biology students have ample opportunity for close association with the personnel of the Alaska Cooperative Fish and Wildlife Research Unit, Institute of Arctic Biology and several local offices of federal and state conservation agencies. These agencies often provide support for graduate student projects, and program faculty usually hire a number of students for summer field work. Exceptional opportunities are available for students to gain experience and make job connections.

The Department of Biology and Wildlife, the Institute of Arctic Biology and the Alaska Cooperative Fish and Wildlife Research Unit cooperate in offering graduate work leading to the M.S. degree. Detailed information on the graduate program in wildlife biology and management is available from the chair of the wildlife program.

The Alaska Cooperative Fish and Wildlife Research Unit and Institute of Arctic Biology offer a limited number of research assistantships. Teaching assistantships are available in the Department of Biology and Wildlife.

Degree

• M.S., Wildlife Biology and Conservation (p. 315)

M.S., Wildlife Biology and Conservation

• Complete the following admission requirement:
  a. Submit scores from both the GRE general test (required) and the GRE subject test in biology (highly recommended).
  b. If English is not your native language, submit scores from both the Test of Spoken English and the Test of Written English, as well as TOEFL scores. Requests, including justification, for exceptions to this requirement should be made to the chair of the department.

Minimum Requirements for Degree: 30 credits

<table>
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<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>General University Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete the general university requirements. (p. 254)</td>
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</tbody>
</table>
 COURSE DESCRIPTIONS

How to Read the Course Descriptions (p. 316)

This section contains complete information for all UAF courses. Unless otherwise indicated, course frequency refers to the offering of courses at the Fairbanks campus. The courses listed in this catalog are not offered at all UAF sites but may be offered if demand warrants and qualified faculty are available.

Courses are regularly offered at Bristol Bay Campus at Dillingham, Chukchi Campus at Kotzebue, Kuskokwim Campus at Bethel and Northwest Campus at Nome. Through the Interior Alaska Campus, courses are available at Fort Yukon, Galena, McGrath, Nenana and Tok.

Information about the frequency of courses at these community sites can be obtained from the local UAF representative.

Course Numbers

The first numeral of a course numbered in the hundreds indicates the year in which a student typically takes the course. For example, WRTG F111X is usually for first-year students and ENGL F318 is for third-year students. Freshman and sophomore students are cautioned to register for upper-division (300- and 400-) level courses only if they have adequate preparation and background to undertake advanced study in the field in which those courses are offered.

<table>
<thead>
<tr>
<th>Course Numbers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>000-049</td>
<td>Non-credit courses</td>
</tr>
<tr>
<td>050-099</td>
<td>Developmental courses</td>
</tr>
<tr>
<td>100-299</td>
<td>Lower-division courses</td>
</tr>
<tr>
<td>300-499</td>
<td>Upper-division courses</td>
</tr>
<tr>
<td>500-599</td>
<td>Post-baccalaureate professional courses</td>
</tr>
<tr>
<td>600-699</td>
<td>Graduate Courses</td>
</tr>
</tbody>
</table>

STACKED AND CROSS-LISTED COURSES

Some courses are offered by an interdisciplinary program (such as Women, Gender and Sexuality Studies (p. 252)) with a specific disciplinary content (e.g., History (p. 217)). Some courses containing interdisciplinary content are sponsored by several departments (e.g., ACNS F223X/ANS F223X/MUS F223X). These courses are “cross-listed” and are designated in the class listings by “cross-listed with ____.”

Courses are also sometimes offered simultaneously at different levels (for example: 100/200 or 400/600) with the higher level credit requiring additional effort and possibly a higher order of prerequisites from students. Such courses are referred to as “stacked” and are designated in the class listings by “stacked with ____.” In the case of 400/600-level stacked courses, graduate student enrollment and a higher level of effort and performance is required on the part of students earning graduate credit.

Courses simultaneously stacked and cross-listed are designated in the class listing as “Stacked with ____ and cross-listed with ____.”

For all stacked courses, the course syllabus (not the catalog) must stipulate course content and requirements for each level. The catalog should indicate the difference in prerequisites for each level.

Graduate students may not take any 600-level courses for credit if they have already received 400-level credit for that course in their undergraduate work. Individual exceptions to this rule include those courses where there has been a major shift in focus and should be judged by the instructor and the department.

SPECIAL OR RESERVED NUMBERS

Courses with the suffix X (WRTG F111X, MATH F113X), meet specific general education requirements.

Courses identified with numbers ending in -92 are seminars, covering various topics which may include group discussions and guest speakers; ending in -93 are special topics courses, normally offered one time only; -94, trial courses, offered in anticipation of becoming a permanent course; -95, special topics summer session courses, offered only during the summer; -97, individual study in subject areas not normally available;
Courses identified with these special or reserved numbers may be available at all levels (e.g., 193, 293, 393, etc.) at the discretion of any department, although offerings above the level of approved programs must be approved in advance by the Provost (e.g., 600-level offerings in areas without approved graduate programs or 300- and 400-level courses in areas without approved baccalaureate programs). These courses may be repeated for credit.

Course Credits
A credit hour represents an amount of work that reasonably approximates not less than:

1. One hour of classroom or other faculty instruction and a minimum of two hours of out-of-class student work each week for approximately 15 weeks, or the equivalent amount of work over a different amount of time; or
2. At least an equivalent amount of work for other academic activities, including laboratory work, internships, practice, studio work and other academic work.

Laboratory classes require a minimum of 2,400 lab minutes per credit (three hours per week per credit), or a minimum of 1,600 lab minutes (two hours per week per credit) plus 800 minutes (one hour per week) of study and/or preparation outside of class. A course submission with a lab component must include a justification (in terms of required student work minutes outside of lab) if the laboratory does not require at least 2,400 lab minutes per credit.

The following standards establish the minimum requirements for an academic unit of credit:

1. 800 minutes of lecture or equivalent instructional activities (plus 1,600 minutes of study)
2. 1,600 or 2,400 minutes of laboratory (or studio or other similar activity) + 800 or 0 minutes of outside student work.
3. 2,400-4,800 minutes of supervised practicum
4. 2,400-8,000 minutes of internship (or externship, clinical)
5. 2,400-4,800 minutes of supervised scholarly activity

Credit hours may not be divided, except half-credit hours may be granted at the appropriate rate. For short courses and classes of less than one semester in duration, course hours may not be compressed into fewer than three days per credit. Any existing semester-long course that is to be offered in a format that is compressed to less than six weeks must be approved by the college or school’s curriculum council and the appropriate Faculty Senate committee. Any new course proposal must indicate those course compression format(s) in which the course will be taught. Only approved course formats will be allowed for scheduling.

Given the above information, the formula used for computing credit/contact hours is 800 minutes (13.3 hours) per credit. This equates to approximately one hour of lecture per week for a normal 14-week semester. For courses that do not employ lectures but are intended to achieve learning outcomes equivalent to those of a lecture course (e.g., some e-learning classes), 800 minutes of structured instructional activities are expected per credit, in addition to at least 1,600 minutes per credit of other work that the student completes independently.

"Structured instructional activities" is not restricted to mean synchronous interaction with an instructor, but rather faculty-designed instructional activity intended to facilitate student learning.

Following the title of each course, the number of credits is listed for each semester. Thus “3 credits” means 3 credits may be earned. Credit may not be given more than once for a course unless the course has been designated as repeatable for credit. Figures in parentheses at the end of course descriptions indicate the number of lecture, laboratory and practicum, internship or scholarly activity hours, respectively, the class meets each week for one semester. For example (2+3) indicates that a class has two hours of lecture and three of laboratory work each week. A designation of (1+0+6) indicates that the course meets for one hour of lecture each week and six hours of practicum, internship or other scholarly activity.

Course Prerequisites
Course prerequisites indicate what previous preparation is needed to enroll in a course. An instructor has the right to waive a course prerequisite if the instructor documents that the student possesses the background required to succeed in the class. An instructor also has the right to drop any student from the course if he or she does not meet the prerequisite or has not received a grade of C- or better in all prerequisite courses. Students who take a course at a higher level than a corresponding prerequisite course required for a degree program are not exempt from taking that required course.

Identifying Courses
General education requirements have course numbers ending in X.

Specific Degree Requirements
Courses that may be used to satisfy specific degree requirements (e.g., humanities elective for the B.A. degree, or natural science elective for the B.S. degree) are identified in the course description section by the following degree requirement designators:

- h—humanities
- s—social science
- m—mathematics
- n—natural science
- a—content is relevant to Northern, Arctic or circumpolar studies

For example, you may use ANTH F309, to satisfy the “social science elective” requirement for a Bachelor of Arts degree. Some courses, including all special topics and individual study courses, are not given course classifications.

Course Frequency
A frequency of offering designator such as “Offered Fall” or “Offered Alternate Spring” follows many course descriptions. Every effort is made to ensure this designator is correct. However, students should review the current class schedule or check with individual departments for the most accurate and up-to-date information on future course offerings.
Accounting (ACCT)

ACCT F261X  Principles of Financial Accounting  (s)
3 Credits
During this course we will study accounting from two different methodical approaches: the preparer approach (i.e., a look at how an accounting system is created to record, process and report accounting information) and the user approach (i.e., a look at how various people use the information generated by accountants). Furthermore, this course will study accounting theories to include: historical foundations, the verification of accounting practices and the framework development that governs the field currently. Finally, this course will study the role of accounting in society, how collected accounting data and information can be managed and the related ethical considerations.
Prerequisites: Sophomore standing or higher; placement, concurrent enrollment or completion of MATH at the F100-level or above.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ACCT F262  Principles of Managerial Accounting
3 Credits
Study of the generation and analysis of accounting information and its uses by managers as they engage in planning, control and decision-making activities in business and non-business organizations. Topics include product costing, cost-volume-profit analysis, relevant costs for decision-making and capital budget decisions.
Prerequisites: ACCT F261X.
Lecture + Lab + Other: 3 + 0 + 0

ACCT F263  Accounting Processes
1 Credit
Laboratory covering processes and procedures of accounting. Includes journals, ledgers and recording techniques, and understanding of contemporary accounting issues.
Prerequisites: AIS F101; ACCT F261X; ACCT F262, may be taken concurrently.
Lecture + Lab + Other: 1 + 0 + 0

ACCT F271  Fiscal Management for Emergency Management Operations
3 Credits
Offered Fall
This course is about accounting for public organizations such as fire, police and similar functions of local governments. Accounting is an essential function in all organizations. This course is from a user’s perspective—understanding accounting reports rather than preparing them. The major topics covered include: understanding financial reports, budgeting preparation, governmental accounting basics, grant writing and management and ethics.
Prerequisites: Sophomore standing or higher; placement, concurrent enrollment or completion of MATH at the F100-level or above.
Cross-listed with HSEM F271.
Lecture + Lab + Other: 3 + 0 + 0

ACCT F330  Income Tax
3 Credits
Offered Fall or Spring
Survey of basic concepts of federal taxation with emphasis on taxation of individuals and the impact of taxes on business and investment planning.
Prerequisites: ACCT F361.
Lecture + Lab + Other: 3 + 0 + 0

ACCT F342  Managerial Cost Accounting
3 Credits
Offered Fall or Spring
Cost accounting with managerial emphasis on planning, control and decision making. Topics include cost-volume profit analysis, costing systems, profit planning, flexible budgets, standard costs, responsibility accounting, inventory costing alternatives and relevant costs for decision making. For accounting majors. Note: No credit may be earned for more than one of ACCT F342 or ACCT F352.
Prerequisites: ACCT F262.
Lecture + Lab + Other: 3 + 0 + 0

ACCT F352  Management Accounting
3 Credits
Business policy profit planning, resource planning, control concepts, reporting for management control and impact of public reporting on management decisions. Note: For non-accounting majors only. No credit may be earned for more than one of ACCT F342 or ACCT F352.
Prerequisites: ACCT F261X; ACCT F262.
Lecture + Lab + Other: 3 + 0 + 0

ACCT F356  Internship in Accounting
1-3 Credits
Offered As Demand Warrants
Supervised accounting work experience in an approved position related to the student’s career interests. Number of credits earned depends upon the type of position and time worked. No student may count more than 9 internship credits towards an undergraduate degree, with these credits being electives. Internship credits may not be taken as one of the two required senior-level accounting electives.
Prerequisites: Permission of the SOM advisor.
Lecture + Lab + Other: 0 + 6-14 + 0

ACCT F361  Intermediate Accounting
3 Credits
Offered Fall
Discussions of financial accounting topics from the perspective of both accounting practice and theory. Working capital and fixed asset accounts are emphasized. Ethical and international accounting issues are emphasized throughout the sequence.
Prerequisites: ACCT F262.
Lecture + Lab + Other: 3 + 0 + 0

ACCT F362  Intermediate Accounting
3 Credits
Offered Spring
Discussion of financial accounting topics from the perspective of both accounting practice and theory. Long-term liabilities and stockholders equity are emphasized. Ethical and international accounting issues are emphasized throughout.
Prerequisites: ACCT F361.
Lecture + Lab + Other: 3 + 0 + 0

ACCT F401  Advanced Accounting
3 Credits
Offered Fall or Spring
Accounting for business combinations: parent-subsidiary and home office/branch relationships, partnerships and multinational enterprises.
Prerequisites: ACCT F362.
Lecture + Lab + Other: 3 + 0 + 0
ACCT F404  Advanced Cost Accounting and Controllership  
3 Credits  
Offered Fall or Spring  
Study of the controllership function with emphasis on advanced cost and managerial accounting topics related to contemporary organizations.  
Prerequisites: ACCT F342.  
Lecture + Lab + Other: 3 + 0 + 0  
ACCT F414  Governmental and Nonprofit Accounting  
(O/2)  
3 Credits  
Accounting for governmental units, public schools, colleges and universities, health care providers, voluntary health and welfare organizations and other nonprofit organizations.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; ACCT F362; ACCT F452 or ACCT F472.  
Lecture + Lab + Other: 3 + 0 + 0  
ACCT F430  Advanced Taxes  
3 Credits  
Offered Fall or Spring  
Advanced study of income taxation, emphasizing federal taxation of corporations and partnerships.  
Prerequisites: ACCT F330.  
Lecture + Lab + Other: 3 + 0 + 0  
ACCT F452  Auditing  
(W)  
3 Credits  
Introduction to the professional standards and procedures applicable to an auditor's examination of financial statements. Compliance and Operational auditing, ethical and legal responsibilities, and international auditing issues emphasized.  
Prerequisites: ACCT F362; AIS F316; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  
ACCT F471  Tax Planning & Research  
3 Credits  
Lecture + Lab + Other: 3 + 0 + 0  
ACCT F472  Internal and Government Auditing  
(W)  
3 Credits  
Internal auditing including financial, compliance and performance audits. An overview of auditing concepts and practice is discussed with specific application to internal auditing and governmental auditing, including federal and state single audits. For auditor practitioners and students without field experience in auditing.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ACCT F362.  
Lecture + Lab + Other: 3 + 0 + 0  
ACCT F656  Internship in Accounting  
1-3 Credits  
Offered As Demand Warrants  
Supervised accounting experience in an approved position related to the student's career interests. (Note: Number of credits earned depend on the type of position and time worked. No graduate student may count more than six internship credits towards a graduate degree with these credits being electives.)  
Prerequisites: MBA standing or approval of MBA director.  
Lecture + Lab + Other: 0 + 6-14 + 0  

Accounting and Information Systems (AIS)  

AIS F101  Effective Personal Computer Use  
1 Credit  
Offered As Demand Warrants  
Using and understanding advanced computing software applications. Course develops conceptual and practical knowledge of advanced presentation/communications software, database programs and operating systems.  
Lecture + Lab + Other: 1 + 0 + 0  
AIS F310  Management of Information Systems  
3 Credits  
The role information technology plays in organizations including its impact on information systems, management and business strategy. A conceptual model of system design is introduced and basic business internal controls are surveyed.  
Prerequisites: AIS F101.  
Lecture + Lab + Other: 3 + 0 + 0  
AIS F312  Information Systems Technology  
(W)  
3 Credits  
Offered As Demand Warrants  
Introduction to the hardware and systems software underlying information systems; provides background to understand computer marketing literature and to select among technology alternatives.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  
AIS F316  Accounting Information Systems  
3 Credits  
Offered Fall or Spring  
Accounting systems for business and public entities. Emphasis on internal control functions and design concepts.  
Prerequisites: AIS F101; ACCT F262.  
Lecture + Lab + Other: 3 + 0 + 0  
AIS F324  Advanced MS Excel  
1 Credit  
Offered As Demand Warrants  
Advanced features of the Microsoft Excel spreadsheet program. Includes spreadsheet design and layout, customized graphics, customized reports using database features, optimization/statistical techniques and programming with the Excel macro language. Student is assumed to have basic proficiency with Microsoft Excel.  
Prerequisites: AIS F101; ACCT F262.  
Lecture + Lab + Other: 1 + 0 + 0  
AIS F342  MS Excel for Finance  
1 Credit  
Offered As Demand Warrants  
In this course, students will develop proficiency in Microsoft Excel for financial analysis. This class is especially well-suited to aspiring finance and accounting professionals; it serves to reinforce material covered in financial management and introductory accounting, while building related applied expertise in Excel.  
Prerequisites: AIS F101; AIS F324; BA F325 (may be taken concurrently).  
Lecture + Lab + Other: 1 + 0 + 0
AIS F410  Systems Analysis and Program Design
3 Credits
Offered As Demand Warrants
The system development life cycle for database-oriented information systems in both mainframe and microcomputer environments. Includes programming in one or more fourth-generation languages and a term project.
Prerequisites: AIS F310 or AIS F312.
Lecture + Lab + Other: 3 + 0 + 0

AIS F414  Database Design for Management Information
3 Credits
Offered As Demand Warrants
Combines advanced systems analysis using modern techniques of data modeling with study of management and administrative problems in coordination and management of organization data resources; focusing on needs of medium-sized and large organizations.
Prerequisites: AIS F310 or CS F471.
Lecture + Lab + Other: 3 + 0 + 0

Airframe and Powerplant (AFPM)

AFPM F111  General Airframe and Powerplant
3 Credits
Offered As Demand Warrants
Shop practices, basic math, applied physics, FAA regulations, basic electricity, aircraft weight and balance, ground operations and servicing, cleaning and corrosion control, and materials and process. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam.
Prerequisites: Experience requirements of FAR 65.77.
Lecture + Lab + Other: 3 + 0 + 0

AFPM F145  Basic Mathematics
1 Credit
Offered As Demand Warrants
Review of applied and technical mathematics related to the construction and engines of aircrafts. Common, decimal, fractions and mixed numbers; extracting square roots and raising numbers to a given power; solving ratios, proportions and percentage problems; fundamental algebraic operations.
Prerequisites: Admission to A & P program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F146  Basic Electricity
2 Credits
Offered As Demand Warrants
Electrical theory and concepts for the aviation mechanic. Ohm's law, electrical circuits, diagrams, batteries and a variety of electrical components.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F147  Physics for Mechanics
0.5 Credit
Offered As Demand Warrants
Applications of mechanics; levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamics. (Course does not fulfill natural science requirements for any degree.)
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F148  Aircraft Drawing
1 Credit
Offered As Demand Warrants
Basic drafting. Drawings, symbols and schematic diagrams, sketches of repairs and alterations, blueprint information, graphs and charts.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F149  Fluid Lines and Fittings
0.5 Credit
Offered As Demand Warrants
Rigid and flexible fluid lines and fittings, fabrication and installation.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F150  Materials and Processes
2 Credits
Offered As Demand Warrants
Basic shop practices, including selection, identification and installation of aircraft hardware and materials, precision measuring tools and operations, basic heat treating processes, forms of nondestructive inspections.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F151  Cleaning and Corrosion Control
1 Credit
Offered As Demand Warrants
Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F152  Federal Aviation Regulations
1 Credit
Offered As Demand Warrants
Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F153  Weight and Balance
1 Credit
Offered As Demand Warrants
Weighing procedures, weight, arms, moments, center of gravity computations and placarding. Aircraft loading, required forms, weighing.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F154  Ground Operations and Servicing
0.5 Credit
Offered As Demand Warrants
Starting, moving, servicing, securing and fueling aircraft.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F205  Airframe Structures
3 Credits
Offered As Demand Warrants
Prerequisites: Experience requirements of FAR 65.77.
Lecture + Lab + Other: 3 + 0 + 0
AFPM F206  Airframe System and Components  
2 Credits  
Offered As Demand Warrants  
Aircraft electrical, hydraulic and pneumatic systems. Landing gear, instruments, fuel, communication and navigation, cabin atmosphere control, and fire protection systems. Inspection, checking, troubleshooting, repair and servicing. Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.  
Prerequisites: Experience requirements of FAR 65.77.  
Lecture + Lab + Other: 2 + 0 + 0  
AFPM F215  MOS Powerplant Theory/Maintenance  
2 Credits  
Offered As Demand Warrants  
Prerequisites: Experience requirements of FAR 65.77.  
Lecture + Lab + Other: 2 + 0 + 0  
AFPM F216  MOS Powerplant System/Components  
3 Credits  
Offered As Demand Warrants  
Prerequisites: Experience requirements of FAR 65.77.  
Lecture + Lab + Other: 3 + 0 + 0  
AFPM F230  Aircraft Electrical Systems  
2.5 Credits  
Offered As Demand Warrants  
Wiring, control, indication and protection devices for AC and DC systems. Inspection, troubleshooting service and repair of these systems.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 2.5 + 0 + 0  
AFPM F231  Powerplant Electrical Systems  
1.5 Credits  
Offered As Demand Warrants  
Installation, inspection, testing, servicing engine electrical system wiring, controls, indicators and protective devices. Repair and service of electrical generating systems.  
Prerequisites: Admission to A&P program.  
Lecture + Lab + Other: 1.5 + 0 + 0  
AFPM F235  Aircraft Reciprocating Engines  
4.5 Credits  
Offered As Demand Warrants  
History and development of the aircraft reciprocating engine. Repair, overhaul and inspection of various types of engines. Operation and troubleshooting of engines.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 4.5 + 0 + 0  
AFPM F240  Turbine Engines  
2 Credits  
Offered As Demand Warrants  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 2 + 0 + 0  
AFPM F244  Lubricating Systems  
1.5 Credits  
Offered As Demand Warrants  
Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and components.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 1.5 + 0 + 0  
AFPM F245  Ignition Systems  
2 Credits  
Offered As Demand Warrants  
Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems. Repair and bench testing of components.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 2 + 0 + 0  
AFPM F246  Fuel Metering Systems  
2 Credits  
Offered As Demand Warrants  
Prerequisites: Admission to the A & P Program.  
Lecture + Lab + Other: 2 + 0 + 0  
AFPM F248  Induction Systems  
0.5 Credit  
Operation and service of aircraft induction, preheat, anti-ice and supercharger systems.  
Prerequisites: Admission to A&P program.  
Lecture + Lab + Other: 0.5 + 0 + 0  
AFPM F249  Powerplant Cooling Systems  
0.5 Credit  
Inspection, service and repair of engine cooling systems -- both air and liquid cooled installations.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 0.5 + 0 + 0  
AFPM F250  Powerplant Exhaust Systems  
0.5 Credit  
Inspection, service and repair of engine exhaust systems. Includes operations of turbo compounded engines, thrust reversers and noise suppressors.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 0.5 + 0 + 0  
AFPM F251  Fuel Systems  
1.5 Credits  
Offered As Demand Warrants  
Inspection, servicing, troubleshooting and repair of aircraft and engine fuel systems and components.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 1.5 + 0 + 0  
AFPM F252  Propellers  
2 Credits  
Offered As Demand Warrants  
Identification and nomenclature of aircraft propellers. Operation, control and repair of both reciprocating and turbine engine installations.  
Prerequisites: Admission to A & P Program.  
Lecture + Lab + Other: 2 + 0 + 0
AFPM F253  Transport Category Aircraft
1 Credit
Offered As Demand Warrants
Introduction to transport category aircraft systems and components.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F254  Ice and Rain Control Systems
0.5 Credit
Offered As Demand Warrants
Inspection, operation and troubleshooting of de-ice and anti-ice systems.
Prerequisites: Admission to A&P program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F255  Fire Protection Systems
0.5 Credit
Offered As Demand Warrants
Inspection, servicing, troubleshooting and repair of aircraft and engine fire detection and extinguishing systems.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F256  Communications and Navigation Systems
0.5 Credit
Offered As Demand Warrants
Operation of aircraft avionics, autopilots and antennas, including inspection and installation.
Prerequisites: Admission to A&P program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F257  Instrument Systems
0.5 Credit
Offered As Demand Warrants
Inspection, troubleshooting, removal and replacement of aircraft and engine instruments and indicating systems.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F258  Cabin Atmosphere Control Systems
1 Credit
Offered As Demand Warrants
Aircraft pressurization, air conditioning, heating and oxygen systems. Operation, inspection, troubleshooting, service and repair.
Prerequisites: Admission to A&P program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F259  Hydraulic and Pneumatic Systems
1.5 Credits
Offered As Demand Warrants
Operation of hydraulic and pneumatic systems and uses in aircraft. Identification of hydraulic fluids, seals, hydraulic and pneumatic control devices, inspection and servicing and troubleshooting.
Prerequisites: Admission to A&P program.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F260  Aircraft Landing Gear Systems
1.5 Credits
Offered As Demand Warrants
Simple and complex landing gear systems. Operation, service and repair of mechanical and hydraulic retraction mechanisms. Wheel, tire and brake service. Aircraft speed and configuration warning systems, electric brake controls, anti-skid systems, landing gear position and warning systems.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F261  Nonmetallic Structures
1 Credit
Offered As Demand Warrants
Inspection, service and repair of wood structures. Preliminary and secondary repair of interior and service of plastic, honeycomb, bonded, and composite and laminated structures.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F262  Aircraft Coverings
1 Credit
Offered As Demand Warrants
Selection, application, inspection and testing of fabric and fiberglass coverings and methods of repair.
Prerequisites: Admissions to A & P Program.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F263  Aircraft Finishes
0.5 Credit
Offered As Demand Warrants
Identification and selection of aircraft finishing materials. Application of paints, dopes, primers and trim.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F264  Sheet Metal Structures
3 Credits
Offered As Demand Warrants
Aircraft sheet metal fabrication, inspection and repair, including rivets and fasteners.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 3 + 0 + 0

AFPM F265  Aircraft Welding
1.5 Credits
Offered As Demand Warrants
Contemporary welding methods on aircraft structures. Oxyacetylene, arc, inert gas and brazing techniques. Inspection of welded structure and safety procedures.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F266  Assembly and Rigging
1.5 Credits
Offered As Demand Warrants
Aerodynamic theory and function of aircraft control surfaces. Fabrication and installation of control devices for fixed and rotary wing aircraft; jacking and control surface balance.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F267  Airframe Inspections
0.5 Credit
Offered As Demand Warrants
Inspection and return of aircraft to service. Procedural and legal aspects of 100 hour, annual and periodic inspections.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F270  Airframe Testing
0.5 Credit
Offered As Demand Warrants
Preparation for the Federal Aviation Administration written, oral and practical exams for the powerplant mechanics' license.
Prerequisites: Admission to A & P Program.
Lecture + Lab + Other: 0.5 + 0 + 0
AFPM F271  Powerplant Inspections  
0.5 Credit  
Offered As Demand Warrants  
Methodology and record keeping for inspection of aircraft reciprocating and gas turbine engines.  
**Prerequisites:** Admission to A & P Program.  
**Lecture + Lab + Other:** 0.5 + 0 + 0  
AFPM F272  Powerplant Testing  
0.5 Credit  
Offered As Demand Warrants  
Preparation for the Federal Aviation Administration written, oral and practical exams for the powerplant mechanics' license.  
**Prerequisites:** Admission to A & P Program.  
**Lecture + Lab + Other:** 0.5 + 0 + 0  
AFPM F325  Inspection Authorization Preparation  
2 Credits  
Offered As Demand Warrants  
Technical background training for the working airframe and powerplant mechanic in selecting, reviewing and utilizing the appropriate federal regulatory and advisory information as well as the manufacturer's maintenance information to inspect and return to service aircraft, engines, propellers, appliances and related parts in accordance with FAR Part 65.95. Final exam is the FAA Inspection Authorization exam administered by an FAA airworthiness inspector.  
**Prerequisites:** FAA A & P Certificate, meet additional requirements of FAR 65.91.  
**Lecture + Lab + Other:** 1 + 2 + 0  

**Alaska Native Languages (ANL)**  

**ANL F108  Beginning Athabascan Literacy**  
(h, a)  
1-3 Credits  
Offered As Demand Warrants.  
Introduction to reading and writing in one of the Athabascan languages.  
For speakers of the language who want to become literate. Also offered as pass/fail as ANL F108P.  
**Lecture + Lab + Other:** 1-3 + 0 + 0  

**ANL F121  Conversational Alaska Native Language**  
(h, a)  
1-3 Credits  
Offered Fall  
Introduction to speaking and understanding one of the Alaska Native languages. Focus on communication in everyday situations. Note: Does not satisfy core curriculum requirements.  
**Lecture + Lab + Other:** 1-3 + 0 + 0  

**ANL F122  Conversational Alaska Native Language**  
(h, a)  
1-3 Credits  
Offered Spring  
Introduction to speaking and understanding one of the Alaska Native languages. Focus on communication in everyday situations. Note: Does not satisfy core curriculum requirements.  
**Prerequisites:** ANL F121 in the same language.  
**Lecture + Lab + Other:** 1-3 + 0 + 0  

**ANL F141X  Beginning Athabascan-Koyukon or Gwich’in**  
(h, a)  
5 Credits  
Offered Fall  
Introduction to an Alaska Athabascan language. Class will deal with one of the eleven Athabascan languages spoken in Alaska. Literacy and grammatical analysis for speakers. For non-speakers, a framework for learning to speak, read and write the language.  
**Attributes:** UAF GER Humanities Req  
**Lecture + Lab + Other:** 5 + 0 + 0  

**ANL F142X  Beginning Athabascan**  
(h, a)  
5 Credits  
Offered Spring  
Introduction to an Alaska Athabascan language. Class will deal with one of the eleven Athabascan languages spoken in Alaska. Literacy and grammatical analysis for speakers. For non-speakers, a framework for learning to speak, read and write the language.  
**Prerequisites:** ANL F141X in the same language.  
**Attributes:** UAF GER Humanities Req  
**Lecture + Lab + Other:** 5 + 0 + 0  

**ANL F150  Interpretive Communication**  
(s, a)  
1 Credit  
Offered As Demand Warrants  
Understanding differences in cross-cultural interaction. Application of cross-cultural interactions to various communication settings. Concentrates on Yup’ik ways of communication. Kuskokwim Campus only.  
**Lecture + Lab + Other:** 1 + 0 + 0  

**ANL F151  Interethnic Communications**  
(s, a)  
3 Credits  
Offered As Demand Warrants  
Understanding differences in cross-cultural interaction. Application of cross-cultural interactions to various communication settings. Concentrates on Yup’ik ways of communication. Kuskokwim Campus only.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**ANL F199  Practicum in Native Language Education**  
(a)  
3 Credits  
Offered As Demand Warrants  
Individualized work experience. Variable credit (depending on the quantity and quality of the work experience). Offered on campus and via distance delivery. When offered via distance delivery, a local mentor (usually principal or teacher) must be willing to work with the student on the local level. Also offered as pass/fail as ANL F199P.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**ANL F208  Advanced Athabascan Literacy**  
(h, a)  
1-3 Credits  
Offered As Demand Warrants  
Expository and creative writing for native speakers; reading Athabascan literature; elicitation, transcription and editing of cultural materials from elders.  
**Lecture + Lab + Other:** 1-3 + 0 + 0
ANL F221   Intermediate Conversational Alaska Native Language  (h, a)  3 Credits  
Offered As Demand Warrants  
Continuation of ANL F121, ANL F122. Focus on conversational skills in a particular Alaska Native language. On completion of this course the student should not only be able to function at a low level of fluency but should also have the skills necessary to increase fluency through continued use of the language.  
Prerequisites: ANL F121; ANL F122.  
Lecture + Lab + Other: 1 + 3 + 0 + 0

ANL F241   Intermediate Athabaskan-Koyukon or Gwich’in  (h, a)  3 Credits  
Offered Fall  
Continuation of beginning Athabaskan-Koyukon or Gwich’in. One of these two languages will be taught. Development of conversational ability, additional grammar and vocabulary.  
Prerequisites: ANL F141X and ANL F142X in the same language.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F242   Intermediate Athabaskan-Koyukon or Gwich’in  (a)  3 Credits  
Offered Spring  
Continuation of beginning Athabaskan-Koyukon or Gwich’in. One of these two languages will be taught. Development of conversational ability, additional grammar and vocabulary.  
Prerequisites: ANL F141X and ANL F142X in the same language.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F251X   Introduction to Athabaskan Linguistics  (h, a)  3 Credits  
Offered Summer, As Demand Warrants  
An introduction to the linguistic structure of the Athabaskan family of languages, drawing on examples from the Athabaskan languages of Alaska. Writing systems, word structure, texts, and language relationships. Techniques for accessing linguistic reference materials and the role of linguistic documentation in language revitalization and language learning.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 3 + 0 + 0

ANL F255X   Introduction to Alaska Native Languages  (a)  3 Credits  
Offered Spring  
Overview of languages native to Alaska. Focus on a specific language will depend on student body. Includes history, present and future prospects of languages, basic language structure, issues affecting language endangerment and revitalization, and oral and written literature.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 3 + 0 + 0

ANL F256   Introduction to Alaska Native Languages: History, Status and Maintenance  (a)  3 Credits  
Offered Spring Even-numbered Years  
Overview of languages native to Alaska. Focus on a specific language or language area (optional as most relevant to a regional student body). History, current status and factors affecting the future maintenance of Alaska’s languages. Topics include educational policies, lexical development (including corpus planning and standardization), language status (including language maintenance and revival issues).  
Lecture + Lab + Other: 3 + 0 + 0

ANL F278   Teaching Methods for Alaska Native Languages  (h, a)  3 Credits  
Offered As Demand Warrants  
Methodological approaches and practice in teaching Native language and literacy to both speakers and non-speakers.  
Prerequisites: Knowledge of a Native language.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F288   Curriculum and Materials Development for Alaska Native Languages  (h, a)  3 Credits  
Offered As Demand Warrants  
Preparation and evaluation of curriculum and classroom materials for teaching Native languages.  
Prerequisites: ANL F287; Knowledge of a Native language.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F315   Alaska Native Languages: Eskimo-Aleut  (h, a)  3 Credits  
Offered As Demand Warrants  
A survey of the Native languages of Alaska, particularly Eskimo-Aleut: history, present and future, with examples of language structure, present situation and prospects as a cultural force. Open to all students.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F316   Alaska Native Languages: Indian Languages  (h, a)  3 Credits  
Offered As Demand Warrants  
A survey of the Native languages of Alaska, particularly of the Indian languages: Athabascan-Eyak-Tlingit, Haida and Tsimshian. History, present and future; examples of language structure, present situation and prospects as a cultural force. Open to all students.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F401   Alaska Native Language Apprenticeship  (h, a)  5 Credits  
Offered As Demand Warrants  
Structured study of an Alaska Native Language. Select and work intensively with a mentor (a native speaker of the language selected). Choice of mentor requires faculty approval. Meet regularly with mentor (minimum 10 hours per week) and participate in regular training sessions to work toward fluency.  
Prerequisites: One year university-level study in language of internship.  
Lecture + Lab + Other: 0.5 + 0.5 + 0

ANL F402   Alaska Native Language Apprenticeship  (h)  5 Credits  
Offered As Demand Warrants  
Structured study of an Alaska Native language. Select and work intensively with a mentor (a native speaker of the language selected). Choice of mentor requires faculty approval. Meet regularly with mentor (minimum 10 hours per week) and participate in regular training sessions to work toward fluency.  
Prerequisites: ANL F401.  
Lecture + Lab + Other: 0.5 + 0.5 + 0
ANL F452  Principles of Linguistic Analysis for Alaska Native Languages
3 Credits
Offered As Demand Warrants
Systematic principles of phonology, morphology, syntax and semantics for the Athabascan-Eyak-Tlingit, Haida, Tsimshian and Eskimo-Aleut language family. This language family is central to this course; the specific Alaska Native language emphasized will be dependent on student interest. Includes exposure to a variety of references and tools available for research in Alaska Native languages and linguistics.
Prerequisites: LING F101X or ANL F251X.
Lecture + Lab + Other: 3 + 0 + 0

ANL F601  Seminar in Language Revitalization
3 Credits
Offered As Demand Warrants
Language teaching and acquisition strategies appropriate to under-documented and less commonly taught languages. Students write an applied research proposal related to local language endangerment issues and strategies for improving teaching either at the school or community level. Emphasis on students' class presentation and research ideas.
Prerequisites: LING F450; ANTH F451 or LING F601.
Lecture + Lab + Other: 3 + 0 + 0

ANL F608  Indigenous Knowledge Systems
3 Credits
Offered Fall
A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.
Prerequisites: Graduate standing.
Cross-listed with CCS F608; ED F608; RD F608.
Lecture + Lab + Other: 3 + 0 + 0

ANL F651  Topics in Athabaskan Linguistics
3 Credits
Offered As Demand Warrants
Graduate level introduction to important topics in Athabaskan linguistics, including both foundational literature and current research. Topics may include laryngeal features; tonogenesis; syntax-morphology interface; argument structure; lexical semantics; and discourse. Course may be repeated once.
Prerequisites: LING F601; graduate standing.
Recommended: LING F603; LING F604.
Cross-listed with LING F651.
Lecture + Lab + Other: 3 + 0 + 0

ANL F690  Seminar in Cross-cultural Studies
3 Credits
Offered As Demand Warrants
Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.
Prerequisites: Advancement to candidacy and permission of student's graduate committee.
Cross-listed with CCS F690; ED F690; RD F690.
Lecture + Lab + Other: 3 + 0 + 0

ANL F698  Non-Thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

ANL F699  Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

Alaska Native Studies (ANS)

ANS F100  Preparing for College and Student Success (a)
1 Credit
Presentations on time and financial management, test-taking strategies, study techniques, UAF and community resources, GPA calculation, UAF catalog information, core requirements, goal-setting and personal choices. Provides students with the information and skills necessary for a successful UAF experience. Instruction by the staff of Rural Student Services. Native leaders will be invited as regular guest speakers.
Lecture + Lab + Other: 1 + 0 + 0

ANS F101  Introduction to Alaska Native Studies (h, a)
3 Credits
Offered Fall
Introductory information on the Alaska Native community. Overview of significant Native issues. Review of pertinent literature and resources.
Lecture + Lab + Other: 3 + 0 + 0

ANS F111X  History of Colonization in Alaska: The Indigenous Response (s, a)
3 Credits
Offered Fall and Spring
The history of the colonization of Alaska from contact to the signing of the Alaska Native Claims Settlement Act in 1971. This course examines Alaska history, how colonization and federal Indian policy shaped the state and some of the ways that Alaska Natives responded to and dealt with the changes.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ANS F112  Alaska Native Claims Settlement Act: Land Claims in the 21st Century (a)
1 Credit
Offered Fall
Familiarize students with the land claims process and important Alaska Native Claims Settlement Act content, with focus on contemporary situations and explanation of land claims processes ongoing or recently completed in locations outside Alaska.
Crosslisted with RD F110.
Lecture + Lab + Other: 1 + 0 + 0

ANS F113  Indigenous Peoples and International Laws (a)
1 Credit
Offered Spring Odd-numbered Years
Familiarize students with international law and its importance for Indigenous Peoples. Special emphasis on international legal instruments of importance for Alaska Natives.
Cross-listed with RD F113.
Lecture + Lab + Other: 1.5 + 0 + 0
ANS F114 Indigenous Peoples and North American Legal Systems (a) 1 Credit
Offered Spring Even-numbered Years
Familiarize students with domestic law and how it affects Indigenous Peoples’ governance in the United States. Special emphasis on the relationship between Tribal legal systems and those of the state and federal governments. Examination of how law is made and why Tribal laws differ from those in neighboring jurisdictions. Course uses asynchronous online delivery.
**Cross-listed with** RD F114.
**Lecture + Lab + Other:** 1.5 + 0 + 0

ANS F150 Topics in Alaska Regional Cultural History (s, a) 3 Credits
Offered As Demand Warrants
Cultural history of the peoples of a selected region of Alaska, which will vary depending on demand and instructor expertise. Methods including physical anthropology, ethnohistory, linguistics, archaeology, social anthropology, ethnography, ecology and climatology will be used. Includes the issues of culture-change due to Alaska Native and Euro-American contacts.
**Recommended:** ANS F242X.
**Lecture + Lab + Other:** 3 + 0 + 0

ANS F160 Alaska Native Dance (h, a) 1 Credit
Traditiona Native Alaskan dancing, singing and drumming of songs from Alaska’s major indigenous groups taught by guest Native elders and dancers. If there is sufficient interest, a dance group will be assembled using class members for spring presentations primarily in the Fairbanks area, including the Festival of Native Arts.
**Lecture + Lab + Other:** 0 + 2 + 0

ANS F161X Introduction to Alaska Native Performance (h, a) 3 Credits
Offered Fall
For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from Alaska Native heritage.
**Cross-listed with** FLPA F161X.
**Attributes:** UAF GER Arts Req
**Lecture + Lab + Other:** 3 + 0 + 0

ANS F202X Aesthetic Appreciation of Alaska Native Performance (h, a) 3 Credits
Offered Fall
Understanding and application of the cultural principles of Alaska Native oral narrative performances. Topics are arranged by the five broad Alaska Native regions and include lectures on culture, principles of visual arts analysis of oral narratives, musical expression and hands-on involvement in Alaska Native theatrical arts.
**Prerequisites:** Placement in WRTG F111X.
**Attributes:** UAF Core Aesthetic Appreciation, UAF GER Arts Req
**Lecture + Lab + Other:** 3 + 0 + 0

ANS F223X Alaska Native Music (h, a) 3 Credits
Introductory course devoted to the study of indigenous musical cultures throughout Alaska and neighboring regions. Emphasis on musical systems in terms of their respective sounds and their relationship to culture and society, cross-cultural comparisons and a focus on both past and present musical styles.
**Cross-listed with** MUS F223X; ACNS F223X.
**Attributes:** UAF GER Arts Req
**Lecture + Lab + Other:** 3 + 0 + 0

ANS F242X Native Cultures of Alaska (s, a) 3 Credits
The traditional Aleut, Eskimo and Indian (Athabaskan and Tlingit) cultures of Alaska. Eskimo and Indian cultures in Canada. Linguistic and cultural groupings, population changes, subsistence patterns, social organization and religion in terms of local ecology. Pre-contact interaction between groups.
**Attributes:** UAF GER Social Sciences Req
**Lecture + Lab + Other:** 3 + 0 + 0

ANS F250 Current Alaska Native Leadership Perspectives (s, a) 3 Credits
Offered As Demand Warrants
Prominent leaders in the Native community are brought into direct classroom contact with students to discuss important issues in rural Alaska and the larger Native community.
**Lecture + Lab + Other:** 3 + 0 + 0

ANS F251 Practicum in Native Cultural Expression (a) 1-3 Credits
Provides individual supervised activities in the formal organization, promotion and expression of Alaskan Native cultural heritage. May be repeated to a maximum of three credits.
**Prerequisites:** Permission of the department head.
**Lecture + Lab + Other:** 1-3 + 0 + 0

ANS F258 Beginning Native Art Studio (h, a) 3 Credits
Offered Fall
Four writing methods essential to communication for Alaska Native Studies students. Emphasis on the student’s development of composition abilities in a variety of Native and Western forms. Publication of student work a possibility.
**Prerequisites:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 3 + 0 + 0

ANS F300 Alaska Native Writers Workshop (W, h, a) 3 Credits
Offered Spring
Native corporation goals and methods as they implement the Alaska Native Claims Settlement Act and establish themselves within the larger political economy. An examination of other indigenous land claims agreements in the circumpolar north and beyond.
**Prerequisites:** ANS F242X or PS F263 or ANS F111X.
**Lecture + Lab + Other:** 3 + 0 + 0
ANS F315  Tribal People and Development  (s, a)  
3 Credits
Offered Spring Even-numbered Years
Impact of socioeconomic development processes on tribal peoples in less developed world societies. Implications of these processes for Alaska Native people.
Prerequisites: Junior standing.
Cross-listed with RD F315.
Lecture + Lab + Other: 3 + 0 + 0

ANS F325  Native Self-government  (s, a)  
3 Credits
Offered Spring Odd-numbered Years
Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance under federal Indian law and Alaska state-chartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people.
Prerequisites: ANS F111X or PS F263 or TM F201.
Cross-listed with PS F325.
Lecture + Lab + Other: 3 + 0 + 0

ANS F329  Indigenous Alaska Native Language and Culture Revitalization  (a)  
3 Credits
Offered As Demand Warrants
The course will focus on contemporary issues, principles and practice models in the revival maintenance and revitalization of Indigenous languages and cultures in Alaska and from an international perspective. A variety of language revitalization approaches and methods will be considered, including linguistic documentation, teaching language courses, immersion and master-apprentice programs.
Prerequisites: ANS F242X, WRTG F111X; Junior Standing.
Lecture + Lab + Other: 3 + 0 + 0

ANS F340  Contemporary Native American Literature  (h, a)  
3 Credits
Offered Fall Odd-numbered Years
Contemporary Native American writing in English, including novels, short stories, poetry and plays. Examples of Native American film when related to a written work. Works discussed in relation to cultural contexts and interpretations.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Cross-listed with ENGL F340.
Lecture + Lab + Other: 3 + 0 + 0

ANS F347  Voices of Native American Peoples  (h, a)  
3 Credits
Offered Spring Even-numbered Years
Exploration of the forms by which Native American peoples have narrated their life experiences. Includes oral narratives, written autobiographies, memoirs and speeches, and an introduction to the social, historical and cultural content surrounding these texts. Readings selected from all of North America with an emphasis on Alaska Natives.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Cross-listed with ENGL F347.
Lecture + Lab + Other: 3 + 0 + 0

ANS F348  Native North American Women  (W, s, a)  
3 Credits
Offered As Demand Warrants
Interdisciplinary examination of the relationship between Native American women and their social settings and cross-cultural experiences. Includes issues of political, economic and social solutions as employed by women in a large multi-ethnic nation-state.
Prerequisites: ANS F101; ANTH F100X, WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SOC F101X.
Cross-listed with WGS F348.
Lecture + Lab + Other: 3 + 0 + 0

ANS F349  Narrative Art of Alaska Native Peoples (in English translation)  (h, a)  
3 Credits
Offered Fall Even-numbered Years
Traditional and historical tales by Aleut, Eskimo, Athabascan Eyak, Tlingit, Haida and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Cross-listed with ENGL F349.
Lecture + Lab + Other: 3 + 0 + 0

ANS F350  Cross-cultural Communication: Alaska Perspectives  (O, W, s, a)  
3 Credits
Offered Fall
Culture influences on communication patterns. Examines how misunderstandings may develop from differently organized ways of speaking and thinking when cultures come in contact. Focus on Alaska, with its diversity of cultures and languages, as a microcosm for examining these issues, particularly as they affect Native and non-Native communication in institutional settings.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

ANS F351  Practicum in Native Cultural Expression  (a)  
1-3 Credits
Individual supervised activities in advanced organization, promotion and expression of Alaskan Native cultural heritage projects (Festival of Native Arts leadership, Theater magazine, etc.). Continuation of ANS F251.
Prerequisites: Junior standing.
Lecture + Lab + Other: 1-3 + 0 + 0

ANS F360  Advanced Native Dance  (h, a)  
1 Credit
Offered Spring
Advanced dance techniques with emphasis on the cultural meanings of the performance.
Prerequisites: ANS F160.
Lecture + Lab + Other: 1 + 0 + 1

ANS F361  Advanced Alaska Native Performance  (h, a)  
3 Credits
Offered As Demand Warrants
In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester.
Prerequisites: ANS F161X, FLPA F161X.
Cross-listed with FLPA F361.
Lecture + Lab + Other: 2 + 3 + 0
ANS F365  Native Art of Alaska  (W, h, a)
3 Credits
Offered Fall
Art forms of the Eskimo, Indian and Aleut from prehistory to the present. Changes in forms through the centuries.
Prerequisites: Advanced standing.
Cross-listed with ANTH F365; ART F365.
Lecture + Lab + Other: 3 + 0 + 0

ANS F366  Northwest Coast Indian Art  (h, a)
3 Credits
Offered As Demand Warrants
Arts of the Northwest Coast Indians and the place of art in their culture.
Cross-listed with ANTH F366; ART F366.
Lecture + Lab + Other: 3 + 0 + 0

ANS F368  Intermediate Native Art Studio  (h, a)
3 Credits
Understanding and applying advanced traditional designs and technologies of Native art.
Prerequisites: ART F268.
Cross-listed with ART F368.
Lecture + Lab + Other: 1 + 4 + 0

ANS F375  Native American Religion and Philosophy  (h, a)
3 Credits
Offered As Demand Warrants
Philosophical aspects of Native American world views. Systems of belief and knowledge, explanations of natural phenomena, relationship of humans to natural environment through ritual and ceremonial observances.
Recommended: PHIL F102X.
Lecture + Lab + Other: 3 + 0 + 0

ANS F381  Indigenous World in Film  (W, h, a)
3 Credits
Offered As Demand Warrants
The history and appreciation of Indigenous films, with an emphasis on Alaska Native contributions through select films, readings and guest speakers. Analysis of social impacts of portrayals and treatment of indigenous peoples while learning to critically analyze films through understanding film techniques and terminology. Overview of the history and development of Indigenous film industries.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Recommended: ART F200X, MUS F200X, or FLPA F200X.
Cross-listed with FLPA F381.
Lecture + Lab + Other: 1.5 + 2.4 + 0

ANS F401  Cultural Knowledge of Native Elders  (h, a)
3 Credits
Offered Fall
Study with prominent Native tradition-bearers in Native philosophies, values and oral traditions. Traditional knowledge elicited through the cultural heritage documentation process. Analysis of existing interactions between cultural traditions and contemporary American life as experienced by Native elders.
Prerequisites: ANS F111X; ANS F242X; upper-division standing.
Cross-listed with RD F401.
Lecture + Lab + Other: 3 + 0 + 0

ANS F420  Alaska Native Education  (s, a)
3 Credits
Offered Fall
School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required.
Prerequisites: ANS F242X; junior standing.
Cross-listed with ED F420.
Stacked with ED F606.
Lecture + Lab + Other: 3 + 0 + 0

ANS F425  Federal Indian Law and Alaska Natives  (s, a)
3 Credits
Offered Fall
The special relationship between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. Federal Indian law and policy evolving from this relationship. Legal rights and status of Alaska Natives.
Prerequisites: PS F101X or TM F112 or TM F201 or HIST F110.
Recommended: PS F263.
Cross-listed with PS F425.
Lecture + Lab + Other: 3 + 0 + 0

ANS F435  Participatory Policymaking in Tribal, State and Federal Government  (a)
3 Credits
Offered Fall Odd-numbered Years
This course analyzes the policy-making and lobbying processes of the American political system, with a focus on the relationship between tribes, U.S. Congress, federal agencies and the U.S. Supreme Court. Uses comparative case studies of national, state of Alaska and tribal issues, policies and laws impacting rural Alaskans.
Prerequisites: RD F300; senior standing.
Recommended: RD F110.
Cross-listed with RD F435.
Lecture + Lab + Other: 3 + 0 + 0

ANS F450  Comparative Indigenous Rights and Policies  (s, a)
3 Credits
Offered As Demand Warrants
Comparative approach to analyzing Indigenous rights and policies in different nation-state systems. Multiple countries and specific policy developments examined for factors promoting or limiting self-determination.
Prerequisites: Upper-division standing.
Cross-listed with PS F450.
Stacked with ACNS F657; PS F650.
Lecture + Lab + Other: 3 + 0 + 0

ANS F458  The Politics of Indigenous Identity  (a)
3 Credits
Offered As Demand Warrants
Examines indigenous identity from four different perspectives: legal, biological, cultural and self-identity. The course will be a journey of self-discovery for students as they research their discovery for students as they research their personal identities whether they be indigenous identities or other identities.
Prerequisites: Upper-division standing.
Lecture + Lab + Other: 3 + 0 + 0
ANS F461 Native Ways of Knowing (h, a)  
3 Credits  
Offered As Demand Warrants  
Focus on how culture and worldview shape who we are and influence the way we come to know the world around us. Emphasis on Alaska Native knowledge systems and ways of knowing.  
Prerequisites: Upper-division standing.  
Cross-listed with ED F461.  
Lecture + Lab + Other: 3 + 0 + 0

ANS F467 Beyond Violence: Alaska Native Healing and Justice (a)  
3 Credits  
Offered As Demand Warrants  
This course will examine the crisis of violence against Native people and within Native communities and the bearing of social, legal, political and cultural responses. The role of sexual and other violence and conquest will be explored, as well as the impacts of trauma, legal and jurisdictional barriers and the developments in victim-centered and restorative justice and other movements in justice and healing. Students will have the opportunity throughout the semester to investigate and research current response systems and relevant policies and issues, and will develop their own ideas for solutions.  
Prerequisites: Senior standing.  
Stacked with RD F667.  
Lecture + Lab + Other: 3 + 0 + 0

ANS F468 Advanced Native Art Studio (h, a)  
3 Credits  
Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms.  
Prerequisites: ART F368.  
Cross-listed with ART F468.  
Lecture + Lab + Other: 3 + 0 + 0

ANS F475 Alaska Native Social Change (s, a)  
3 Credits  
Offered As Demand Warrants  
Tradition and change in Native social institutions in contemporary society. Methods of identifying and analyzing significant Native social change processes for public understanding.  
Prerequisites: ANS F242X.  
Lecture + Lab + Other: 3 + 0 + 0

ANS F478 Alaska Native Studies Senior Thesis (W)  
3 Credits  
Offered Spring  
This is a capstone course that allows students to draw together the concepts, ideas, vocabulary, case studies and situations learned in Alaska Native studies courses to apply them to expand or extend students’ knowledge or to develop a tangible product that benefits others. This course enables students to develop a research paper exploring a specific Native studies topic of their choice, building on concepts learned in the ANS program.  
Prerequisites: Senior standing; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RD F350; ANS F350.  
Lecture + Lab + Other: 3 + 0 + 0

American Sign Language (ASLG)

ASLG F101X American Sign Language I (h)  
3 Credits  
Offered As Demand Warrants  
Visual-gestural language used by most deaf Americans. Acquisition of receptive and expressive conversational skills. Cultural aspects of everyday life experiences of deaf people.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 3 + 0 + 0

ASLG F110 American Sign Language Practice (h)  
1 Credit  
Offered As Demand Warrants  
Skill development in use of American Sign Language. Conducted entirely in sign language with aspects of deaf culture included. All skill levels. May be repeated twice for credit.  
Lecture + Lab + Other: 1 + 0 + 0

ASLG F202X American Sign Language II (h)  
3 Credits  
Expressive and receptive conversational skills. Understanding the culture that is an integral part of the language. Continuation of American Sign Language I.  
Prerequisites: ASLG F101X.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 3 + 0 + 0

ASLG F203 American Sign Language III (h)  
3 Credits  
Grammar, conceptual structure and lexical items of American Sign Language. Cultural awareness and expressive and receptive signing skills for communicating and understanding American Sign Language in diverse contexts. Continuation of ASLG F101X and ASLG F202X.  
Prerequisites: ASLG F202X.  
Lecture + Lab + Other: 3 + 0 + 0

ASLG F204 American Sign Language IV (h)  
3 Credits  
Offered As Demand Warrants  
Prerequisites: ASLG F203.  
Lecture + Lab + Other: 3 + 0 + 0

ASLG F205 American Sign Language V (h)  
3 Credits  
Offered As Demand Warrants  
Highly advanced analysis of American Sign Language, including classifiers, grammar and lexicon. Expanded receptive and expressive skill development based in extensive cultural knowledge of the Deaf community in America.  
Prerequisites: ASLG F204.  
Lecture + Lab + Other: 3 + 0 + 0
ASLG F220  Deaf Culture
3 Credits
Offered as Demand Warrants
This course explores the Deaf-World through the various lens provided by the multidisciplinary fields of anthropology, sociology, history and cultural studies. Students will be asked to inquire into the diversity, complexities and commonalities of Deaf cultural experiences through rigorous questioning of fundamental issues pertaining to cultural practices, ideology, power, identity and heritage.
Prerequisites: WRTG F111X, ASLG F202X.
Lecture + Lab + Other: 3 + 0 + 0

ASLG F230  Deaf History
3 Credits
Offered As Demand Warrants
A focus on Deaf history in America from 1800 to 1950, this course addresses the emergence, growth and survival of America's Deaf community. Through major topics such as schools, labor, community ties, eugenics and organizations, students will learn the significance of the "Deaf" place as well as parallels with other minority groups and associated trends.
Prerequisites: WRTG F111X; ASLG F202X.
Lecture + Lab + Other: 3 + 0 + 0

ASLG F240  ASL Literature
3 Credits
Offered As Demand Warrants
This course is designed as a thorough exploration of the literary traditions in the deaf community. Attention will be given to the unique face-to-face nature of signed literature and its numerous traditional forms. Students will become versed in the stylists, poetics and cultural contexts of signed literature in its live as well as video-text formats.
Prerequisites: WRTG F111X; ASLG F202X.
Lecture + Lab + Other: 3 + 0 + 0

ASLG F260  ASL Lab
1 Credit
Offered As Demand Warrants
Skill development and refinement in both expressive and receptive ASL and the grammar of ASL through structured activities which will supplement what is learned in ASLG F202 each week. Conducted entirely in Sign Language.
Prerequisites: ASLG F202X (may be taken concurrently).
Lecture + Lab + Other: 0 + 3 + 0

Anthropology (ANTH)

ANTH F100X  Individual, Society and Culture  (s)
3 Credits
An examination of the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts.
Prerequisites: Placement in WRTG F111X.
Attributes: UAF Core Indv, Soci Culture, UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ANTH F101X  Introduction to Anthropology  (s)
3 Credits
Offered As Demand Warrants
Human societies and cultures based on the findings of the four subfields of the discipline: archaeological, biological, cultural and linguistic.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ANTH F105  Introduction to the History and Culture of the Seward Peninsula  (a)
1 Credit
Offered As Demand Warrants
Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archaeology, ecology and climatology. Eskimo and Euroamerican cultures which have existed in western Alaska.
Cross-listed with HIST F105.
Lecture + Lab + Other: 1 + 0 + 0

ANTH F111X  Ancient Civilizations  (s)
3 Credits
Offered Fall
Major civilizations of the Old and New World from a comparative, anthropological perspective. Antecedents and influences of these civilizations on their neighbors. Economics, science, religion and social organization of these civilizations.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ANTH F211X  Fundamentals of Archaeology  (s)
3 Credits
Offered Fall
Methods and techniques of archaeological field and laboratory research.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 2 + 3 + 0

ANTH F214  World Prehistory  (s)
3 Credits
Offered Spring Even-numbered Years
Explores the archaeological evidence from the Old and New Worlds for the development of human culture, from the very beginning of humankind to the rise of ancient urban societies.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F215  Fundamentals of Social/Cultural Anthropology  (s)
3 Credits
Offered Spring
Introduction to the basic concepts, subfields and techniques of social/ cultural anthropology. Includes non-Western and Western ethnographic topics, and discussion of career options.
Recommended: ANTH F211X.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F221  Fundamentals of Biological Anthropology  (n)
3 Credits
Offered Fall
Survey of genetics, evolutionary mechanisms, adaptation, primate studies, the human fossil record and human variation. Provides a basic understanding of humans from a biological, evolutionary and temporal perspective.
Lecture + Lab + Other: 3 + 0 + 0
ANTH F223  Sociolinguistics: Language and Social Inequality  
3 Credits  
Offered As Demand Warrants  
This course is an introduction to the concepts and methods of linguistic anthropology and sociolinguistics. It draws from these disciplines in order to investigate the role of language variation in social inequality. It covers concepts including language variety, speech styles, language ideologies, the creation of standard languages and portrayals of ethnonationalist groups in the media.  
Prerequisites: ANTH F100X or LING F101X.  
Cross-listed with LING F223.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F225  Anthropology and Race  
(s)  
3 Credits  
Offered Spring Even-numbered Years  
This course introduces students to important scholarly and practical concepts in the study of "race" and racism historically across cultures. It builds upon the important contributions of four-field anthropological practice to our understanding of the ways societies have constructed racial categories and meanings and deployed racialized hierarchies. Students will read a variety of basic materials in linguistics, biological anthropology, ethnology, and archaeology. This course is part of the anthropology B.S. and B.A. degree and provides foundational concepts for further study in the field of anthropology.  
Prerequisites: ANTH F100X.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F230  The Oral Tradition: Folklore and Oral History  
(h)  
3 Credits  
Offered As Demand Warrants  
Study and collection of folklore and oral history. Importance of oral tradition in human communication and the advantages and disadvantages of recording and studying it. Sociocultural anthropology and anthropological linguistics in relation to oral traditions. Methods of folklorists, historians and academicians. Field project required.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F242  Native Cultures of Alaska  
(s, a)  
3 Credits  
The traditional Aleut, Eskimo and Indian (Athabaskan and Tlingit) cultures of Alaska. Eskimo and Indian cultures in Canada. Linguistic and cultural groupings, population changes, subsistence patterns, social organization and religion in terms of local ecology. Pre-contact interaction between groups.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F245  Culture and Global Issues  
(s)  
3 Credits  
Offered As Demand Warrants  
Introduces students to the anthropological study of globalization and global issues including the deterritorialization of culture, global social movements, culture and capital, immigration and culture, and modern and postmodern approaches to the study of culture and society. Begins with the history of global ethnography, but focuses primarily on contemporary issues.  
Prerequisites: ANTH F100X.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F252  Native Peoples of North America  
(s)  
3 Credits  
Offered As Demand Warrants  
An introduction to the Native inhabitants of North America from their initial appearance on the continent during the late Pleistocene to European contact. The course provides a cross-cultural examination of the social, political, economic and religious aspects of the traditional lifeways of these Native peoples prior to their protohistoric destabilization.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F260  Language in Culture and Communication  
(s)  
3 Credits  
Offered Spring  
An introduction to the study of the language and culture nexus. Questions addressed include: How does the language you speak affect how you think and view the world? How do ways of speaking structure culture? What do we know about how human language evolved? How does language encode cultural meaning? Topics may include linguistic relativity, ethnography of communication, interactional sociolinguistics, writing systems and ritual language.  
Prerequisites: ANTH F100X; or ANTH F101X; or ANTH F215; or SOC F101X; or LING F101X.  
Cross-listed with LING F260.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F301  World Ethnography  
(s)  
3 Credits  
Offered Spring Even-numbered Years  
Survey of ethnographic research on peoples and cultures of selected geographic regions of the world, in both historical and contemporary perspective. Content of the course varies and is contingent on available faculty expertise. Course may be repeated once for credit when content varies.  
Prerequisites: ANTH F100X.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F302  Siberia: Past, Present, Future  
(s, a)  
3 Credits  
Offered Spring Even-numbered Years  
Survey of anthropological research on peoples and cultures of Siberia, including the Russian Far East. This includes sections on prehistory and colonial history of the region, as well as a major focus on contemporary lives and future prospects. While the emphasis is on the indigenous peoples of Siberia, settler populations will be discussed as well.  
Prerequisites: ANTH F100X.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F308  Language and Gender  
(0, W, s)  
3 Credits  
Offered As Demand Warrants  
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X; LING F216X; ANTH F100X; ANTH F101X or WGS F201X.  
Cross-listed with LING F308; WGS F308.  
Lecture + Lab + Other: 3 + 0 + 0
<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>ANTH F309</td>
<td>Circumpolar Archaeology</td>
<td>3</td>
<td>Fall (a)</td>
<td>EBOT F100 or ANTH F100X.</td>
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<tr>
<td>ANTH F314</td>
<td>The Archaeology of the Cavemen</td>
<td>3</td>
<td>Spring (a)</td>
<td>Cross-listed with ENGL F318, LING F101X, LING F223 or ANTH F260.</td>
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<tr>
<td>ANTH F315</td>
<td>Human Variation</td>
<td>(n)</td>
<td>Even (a)</td>
<td>ANTH F221 or BIOL F103X.</td>
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<tr>
<td>ANTH F320</td>
<td>Language and Culture in Alaska</td>
<td>3</td>
<td>Alternate</td>
<td>Cross-listed with WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.</td>
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<td>ANTH F336</td>
<td>Ethnomycology</td>
<td>(s)</td>
<td>Spring (a)</td>
<td>Cross-listed with EBOT F336.</td>
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<tr>
<td>ANTH F365</td>
<td>Native Art of Alaska</td>
<td>3</td>
<td>Fall (a)</td>
<td>Cross-listed with ANS F365; ART F365.</td>
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<tr>
<td>ANTH F366</td>
<td>Northwest Coast Indian Art</td>
<td>(h)</td>
<td>As Demand</td>
<td>Cross-listed with ANS F366; ART F366.</td>
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<tr>
<td>ANTH F383</td>
<td>Athabaskan Peoples of Alaska and Adjacent Canada</td>
<td>(s)</td>
<td>Even (a)</td>
<td>ANTH F242.</td>
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<tr>
<td>ANTH F384</td>
<td>History of Anthropology</td>
<td>3</td>
<td>Fall</td>
<td>Major theoretical approaches in anthropology chronologically from formulation of the discipline of anthropology to current theory. Nature of the discipline, its goals and methods, and the relevance of theoretical perspectives to interpretations in anthropology.</td>
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<tr>
<td>ANTH F389</td>
<td>Klingon, Elvish and Dothraki: The Art and Science of Language Creation</td>
<td>(s)</td>
<td>As Demand</td>
<td>Cross-listed with LING F389.</td>
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<td>ANTH F402</td>
<td>Anthropology of Art</td>
<td>(s)</td>
<td>As Demand</td>
<td>Cross-listed with ART F402.</td>
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**Prerequisites:**
- Senior standing.
- Advanced standing.
- One semester of foreign language.
- Cross-listed with WRTG F111X, WRTG F210X, WRTG F212X, WRTG F213X or WRTG F214X.
ANTH F403 Political Anthropology (O, W, s)
3 Credits
Offered Spring Odd-numbered Years
Political systems and the law. Case studies from nonindustrial societies, developing nations and parapolitical systems or encapsulated societies, such as Native peoples in the U.S. Political structures and institutions; social conflict, dispute settlement, social control and the law, political competition over critical resources; and ethnicity.
Prerequisites: ANTH F215; COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Stacked with ANTH F603.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F405 Archaeological Method and Theory (W, s)
3 Credits
Offered Spring Even-numbered Years
Archaeological methods and analysis as the framework for different perspectives in archaeology. Application to specific research problems.
Prerequisites: ANTH F211X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Stacked with ANTH F605.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F407 Kinship and Social Organization (s)
3 Credits
Offered Spring Even-numbered Years
Forms of relatedness in diverse sociocultural systems. Principles of organizing individuals into social groups and roles. Forms and functions of family, marriage, incest taboo around the world. Classical and new approaches to the study of kinship; alliance theory, symbolic kinship, kinship and gender, the substance of kinship, kinship and biotechnology.
Prerequisites: ANTH F215.
Stacked with ANTH F607.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F409 Anthropology of Religion (s)
3 Credits
Offered Fall Odd-numbered Years
Religion or supernatural belief from the perspective of anthropology. Religion in the context of circumpolar societies as well as a global phenomenon. Religious practitioners, ritual, belief systems and the relationship of religious phenomena to other aspects of social life. New relational and cognitive approaches to the study of religion.
Prerequisites: ANTH F100X; ANTH F215.
Stacked with ANTH F609.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F411 Senior Seminar in Anthropology (O, s)
3 Credits
Offered Spring
The integrated nature of anthropological inquiry. Includes a four-field approach to anthropology in a discussion-intensive setting. Student may focus on an interdisciplinary theme or a topic other than their own specialization.
Prerequisites: COJO F131X or COJO F141X, Anthropology major with senior standing.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F412 Human-environment Research Methods
3 Credits
Offered Fall Odd-numbered Years
Basic overview of qualitative and quantitative social science methods for studying human-environment relationships. Introduction to research ethics, research design, data collection, data analysis and data reporting. Methods and data analysis techniques include interviews, text analysis, surveys, scales, cognitive anthropology and ethnecology, social networks, behavioral observation and visual methods. Provides hands-on training in data collection and data analysis software.
Prerequisites: COJO F131X or COJO F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper level standing.
Cross-listed with FISH F412.
Stacked with FISH F613.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F415 Zooarchaeology and Taphonomy
3 Credits
Offered Fall Even-numbered Years
Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains, and human land use practices.
Prerequisites: ANTH F211X.
Stacked with ANTH F628.
Lecture + Lab + Other: 2 + 3 + 0

ANTH F422 Human Osteology
4 Credits
Growth, development and alteration of the human skeleton. Determination of age, sex, stature and genetic ancestry from bones and teeth. Skeletal remains for diagnosis of disease and identification of cultural practices.
Prerequisites: ANTH F221.
Stacked with ANTH F625.
Lecture + Lab + Other: 3 + 3 + 0

ANTH F423 Human Origins (s)
4 Credits
Offered Spring Odd-numbered Years
Analysis of the hominoid fossil record from the early Miocene to the beginning of the Holocene. Examination of comparative hominoid and hominin skeletal and dental anatomy, systematics and long-term bio-behavioral adaptations, including biomechanical changes and technocultural innovations. Consideration of cultural and historical biases in interpretation of the human fossil record.
Prerequisites: ANTH F221 and ANTH F422; Junior standing.
Stacked with ANTH F623.
Lecture + Lab + Other: 3 + 3 + 0

ANTH F424 Analytical Techniques
3 Credits
Offered Fall Even-numbered Years
Classification, sampling, collection and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and analysis.
Prerequisites: ANTH F211X or ANTH F221; any college level mathematics course.
Stacked with ANTH F624.
Lecture + Lab + Other: 3 + 0 + 0
ANTH F426  Bioarchaeology  (n)  
3 Credits  
Offered Spring Even-numbered Years  
Innovative methods for studying past interactions between biological and cultural factors, as revealed through human and faunal skeletal and plant remains. From these data sources, health, diet, social organization and interactions and life histories of past populations, as well as the environments in which they lived, are reconstructed and examined.  
Prerequisites: ANTH F211X; ANTH F221.  
Stacked with ANTH F626.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F428  Ecological Anthropology and Regional Sustainability  (n, a)  
3 Credits  
Offered Spring Even-numbered Years  
Biological, environmental and cultural factors and their interplay in defining the human condition, with examples from the Arctic and other populations.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F432  Field Methods in Descriptive Linguistics I  (h)  
3 Credits  
Offered Spring Odd-numbered Years  
Introduction to general issues in language field work and to issues specific to working with little studied and/or endangered languages in particular. Focus on introduction to writing systems, making recordings, computers and transcriptions, planning consultant sessions, working with consultants, interviewing and ethics in the field. Projects include making transcriptions of familiar language, and later, working on unfamiliar language with a language consultant, selecting and carrying out a well-defined project, resulting in a term paper.  
Prerequisites: LING F318; LING F320.  
Cross-listed with LING F431.  
Stacked with ANTH F632; LING F631.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F434  Field Methods in Descriptive Linguistics II  
3 Credits  
Offered As Demand Warrants  
Second semester of Field Methods sequence. Plan a linguistic field project, including field trip, caring for equipment, data handling, community contacts, intellectual property and repatriation. Course work includes lectures and group elicitation with a speaker of a non-Indo-European language. Projects may involve either the traditional field work involving finding and working with a consultant, or work involving research in archival materials on languages no longer spoken.  
Prerequisites: LING F431 or ANTH F432.  
Cross-listed with LING F434.  
Stacked with LING F634; ANTH F634.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F435  Political Media and Discourses of the American Right  (0, s)  
3 Credits  
Offered Fall Even-numbered Years or As Demand Warrants  
This class uses “hands-on” discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts. Evaluation of the veracity, ethical or historical merits of conservative political stances is not part of the scope of the class.  
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Cross-listed with LING F435; COJO F435.  
Stacked with LING F635; COJO F640; ANTH F635.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F445  Gender in Cross-cultural Perspective  (s)  
3 Credits  
Offered Spring Even-numbered Years  
Gender as both cultural construction and social relationship is examined through readings in comparative ethnographies portraying gender roles in a broad variety of societies, from hunter-gatherer to industrial. New theoretical and methodological approaches in anthropology for exploring and understanding the experiences of women and men in their cultural variety are presented.  
Prerequisites: ANTH F215 or WGS F201X.  
Cross-listed with WGS F445.  
Stacked with ANTH F645.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F446  Economic Anthropology  (s)  
3 Credits  
Offered Fall Even-numbered Years  
Relationships between economic and other social relations. Pre-industrial societies. Relevance of formal economics to small-scale societies and developing nations. Exchange, formal and substantive economics, market economics, rationality, political economy and the economics of development.  
Prerequisites: A cultural anthropology class.  
Stacked with ANTH F646.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F451  Quaternary Seminar  
3 Credits  
Offered As Demand Warrants  
Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences. This seminar will range widely over diverse interdisciplinary subjects of Quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate paleontology and sedimentology.  
Prerequisites: GEOS F315; GEOS F304; GEOS F322.  
Cross-listed with GEOS F452.  
Stacked with ANTH F651; GEOS F651.  
Lecture + Lab + Other: 3 + 0 + 0
ANTH F460 Cross-cultural Filmmaking (h)
3 Credits
Offered Fall Odd-numbered Years
The use of film as a documentary tool for describing and understanding scientific and cultural phenomenon has led to the education of generations. Understanding the implications of our film work with a theoretical base for cultural understanding, scientific need and educational potentials will strengthen the film’s integrity and production methods in creating video documents useful as a scientific/cultural record. Pre-production will include research of archival visual media, oral histories and print materials; analysis of educational and scientific funding and distribution options and preliminary interviews, location scouting and film treatment. Production will include time on location with small film crews, media logging and record keeping. Post-production will include basic editing of sequences for distribution.
Prerequisites: Junior, senior or graduate standing.
Cross-listed with ART F460, FLPA F460.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F465 Geoarchaeology (a)
3 Credits
Offered As Demand Warrants
Geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day weekend field trip in late April or early May.
Prerequisites: GEOS F101X, an introductory course in archaeology.
Cross-listed with GEOS F465.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F470 Oral Sources: Issues in Documentation (h, a)
3 Credits
Offered Alternate Fall
Preparation for recording and use of oral resources. Examines how meaning is conveyed through oral traditions and personal narratives and the issues involved with recording and reproducing narratives. Includes management of oral recordings, ethical and legal considerations, issues of interpretation and censorship, and the use of new technologies to access and deliver recordings.
Prerequisites: At least one undergraduate ANTH course and one undergraduate HIST course.
Cross-listed with ACNS F470.
Stacked with ANTH F670; ACNS F670.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F472 Culture and History in the North Atlantic (s, a)
3 Credits
Offered Spring Odd-numbered Years
Ancient Norse culture and society. Includes readings of Old Norse poetry and Icelandic sagas in translation, with secondary analyses and archaeological background. Includes Greenlandic myths and contemporary ethnographic accounts of Iceland, Greenland and the Faroe Islands.
Prerequisites: ANTH F100X.
Recommended: ANTH F215.
Stacked with ANTH F672; ACNS F672.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F485 Discourse in Society: Analyzing Language in Social Context (s)
3 Credits
Offered Fall Even-numbered Years
Hands-on experience in collection, transcription and analysis of naturally occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.
Prerequisites: LING F101X, ANTH F260 or ANTH F320.
Cross-listed with LING F485.
Stacked with ANTH F685, LING F685.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F492 Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

ANTH F602 Anthropology of Art
3 Credits
Offered As Demand Warrants
Anthropological study of art in cross-cultural perspective. Social context of art production and use and cross-cultural variations in definition of an artist’s role.
Prerequisites: Senior standing.
Stacked with ANTH F402; ART F402.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F603 Political Anthropology
3 Credits
Offered Spring Odd-numbered Years
Political systems and the law. Case studies from nonindustrial societies, developing nations and parapolitical systems or encapsulated societies, such as Native peoples in the U.S. Political structures and institutions; social conflict, dispute settlement, social control and the law, political competition over critical resources; and ethnicity.
Prerequisites: Graduate standing.
Stacked with ANTH F403.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F605 Archaeological Method and Theory
3 Credits
Offered Spring Even-numbered Years
Archaeological methods and analysis as the framework for different perspectives in archaeology. Application to specific research problems.
Prerequisites: ANTH F211X.
Stacked with ANTH F405.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F606 Folklore and Mythology: Anthropological Perspective
3 Credits
Offered As Demand Warrants
Intensive introduction to anthropological theory concerning oral traditions and the verbal arts. Attention is paid to classic historical approaches, but discussion of contemporary focus on context and performance is highlighted. Students will research topics of individual interest.
Prerequisites: Upper-division undergraduate anthropology course.
Lecture + Lab + Other: 3 + 0 + 0
ANTH F607  Kinship and Social Organization
3 Credits
Offered Spring Even-numbered Years
Forms of relatedness in diverse sociocultural systems. Principles of organizing individuals into social groups and roles. Forms and functions of family, marriage, incest taboo around the world. Classical and new approaches to the study of kinship; alliance theory, symbolic kinship, kinship and gender, the substance of kinship, kinship and biotechnology.
Prerequisites: Graduate standing.
Stacked with ANTH F407.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F609  Anthropology of Religion
3 Credits
Offered Fall Odd-numbered Years
Religion or supernatural belief from the perspective of anthropology. Religion in the context of circumpolar societies as well as a global phenomenon. Religious practitioners, ritual, belief systems and the relationship of religious phenomena to other aspects of social life. New relational and cognitive approaches to the study of religion.
Prerequisites: Graduate standing.
Stacked with ANTH F409.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F610  Northern Indigenous Peoples and Contemporary Issues
3 Credits
Offered Fall Odd-numbered Years
This course examines a number of issues affecting northern indigenous peoples from a comparative perspective, including perspectives from Alaska, Canada, Greenland and the Soviet Union. Issues include the impact of the alienation of land on which these peoples depend; the relationship between their small, rural microeconomies and the larger agroindustrial market economies of which they are a part; education, language loss and cultural transmission; alternative governmental and cultural practices.
Prerequisites: Graduate standing or upper-division standing.
Cross-listed with ACNS F610.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F616  Anthropologic Background for Resilience and Adaptation
1 Credit
Offered fall
Provides the anthropological background that is necessary for understanding the role of anthropology in complex systems involving interactions among biological, economic, and social processes. Designed for incoming students of the Resilience and Adaptation Program (RAP), who have not received training in anthropology.
Prerequisites: Graduate student enrollment.
Lecture + Lab + Other: 1 + 0 + 0

ANTH F617  Resilience Internship
2 Credits
Offered Fall
Students of the Resilience and Adaptation Program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships are for eight to ten weeks of full time commitment and take place during the student’s first summer in the program. In autumn students meet to discuss their internship experiences and make public presentations.
Prerequisites: ANTH F667, BIOL F667, ECON F667 or NRM F667; ANTH F668, BIOL F668, ECON F668 or NRM F668.
Cross-listed with BIOL F613; ECON F613; NRM F613.
Lecture + Lab + Other: 2 + 0 + 0

ANTH F623  Human Origins
4 Credits
Offered Spring Odd-numbered Years
Analysis of the hominoid fossil record from the early Miocene to the beginning of the Holocene. Examination of comparative hominoid and hominin skeletal and dental anatomy, systematics and long-term bio-behavioral adaptations, including biomechanical changes and technocultural innovations. Consideration of cultural and historical biases in interpretation of the human fossil record.
Prerequisites: Graduate standing.
Stacked with ANTH F423.
Lecture + Lab + Other: 2 + 0 + 0

ANTH F624  Analytical Techniques
3 Credits
Offered Spring Even-numbered Years
Classification, sampling, collection and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and analysis.
Prerequisites: Graduate standing in Anthropology.
Stacked with ANTH F424.
Lecture + Lab + Other: 3 + 3 + 0

ANTH F625  Human Osteology
4 Credits
Offered Spring Even-numbered Years
Growth, development and alteration of the human skeleton. Determination of age, sex, stature and genetic ancestry from bones and teeth. Skeletal remains for diagnosis of disease and identification of cultural practices.
Prerequisites: ANTH F221; graduate standing.
Stacked with ANTH F422.
Lecture + Lab + Other: 3 + 3 + 0

ANTH F626  Bioarchaeology
3 Credits
Offered Spring Even-numbered Years
Innovative methods for studying past interactions between biological and cultural factors, as revealed through human and faunal skeletal and plant remains. From these data sources, health, diet, social organization and interactions and life histories of past populations, as well as the environments in which they lived, are reconstructed and examined.
Prerequisites: Graduate standing.
Recommended: ANTH F415; ANTH F625.
Stacked with ANTH F426.
Lecture + Lab + Other: 3 + 0 + 0
ANTH F628  Zooarchaeology and Taphonomy
3 Credits
Offered Fall Even-numbered Years
Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains, and human land use practices.
Prerequisites: Graduate standing.
Stacked with ANTH F415.
Lecture + Lab + Other: 2 + 3 + 0

ANTH F629  Structures of Anthropological Argument
3 Credits
Offered Fall
Reading and analysis of examples from various paradigms in anthropology, past and present. Presents a thorough grounding in forms of anthropological argument and preparation for the research and writing process. Includes evolutionary, Boasian, structural-functional, structural as well as subdisciplinary linguistic, archaeological and biological forms of argument.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F630  Anthropological Field Methods
3 Credits
Offered Spring Odd-numbered Years
Concentration on the practical concerns and aspects of conducting anthropological field research. Includes the relevant literature and significant discussions on the different aspects of fieldwork. In addition, students will gain practical experience in the problems, techniques and methods of fieldwork involving people from similar or distinct cultural backgrounds. The preparation of research proposals is also given attention.
Prerequisites: Graduate standing in Anthropology.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F631  Linguistic Anthropology: Language, Thought and Action
3 Credits
Offered As Demand Warrants
Language and social life. Course surveys the history of linguistic anthropology and the methods and questions that have driven and distinguished the field. Topics include descriptive and structural linguistics, the relationship between grammatical categories and linguistic meaning, ethnographic approaches to the study of language and culture, language and social action, linguistic relativity, semiotics, language socialization and language ideologies.
Prerequisites: Graduate standing.
Cross-listed with LING F640.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F632  Field Methods in Descriptive Linguistics I
3 Credits
Offered Spring Odd-numbered Years
Introduction to general issues in language field work and to issues specific to working with little studied and/or endangered languages in particular. Focus on introduction to writing systems, making recordings, computers and transcriptions, planning consultant sessions, working with consultants, interviewing and ethics in the field. Projects include making transcriptions of familiar language, and later, working on unfamiliar language with a language consultant, selecting and carrying out a well-defined project, resulting in a term paper.
Prerequisites: LING F318; LING F320.
Cross-listed with LING F631.
Stacked with ANTH F432; LING F431.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F634  Field Methods in Descriptive Linguistics II
3 Credits
Offered As Demand Warrants
Second semester of Field Methods sequence. Plan linguistic field project, including field trip, caring for equipment, data handling, community contacts, intellectual property and repatriation. Course work includes lectures and group elicitation with a speaker of non-Indo-European language. Projects may involve either the traditional field work involving finding and working with a consultant, or work involving research of archival materials on languages no longer spoken.
Prerequisites: ANTH F632 or LING F631.
Cross-listed with LING F634.
Stacked with ANTH F432; LING F434.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F635  Political Media and Discourses of the American Right
3 Credits
This class uses “hands-on” discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts. Evaluation of the veracity, ethical or historical merits of conservative political stances is not part of the scope of the class.
Prerequisites: Graduate standing.
Cross-listed with LING F635; COJO F640.
Stacked with ANTH F435; COJO F435; LING F435.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F637  Methods in Ethnohistorical Research
3 Credits
Offered Spring Even-numbered Years
Students of anthropology are introduced to the methods of historical research, particularly the critical evaluation of written documents, problems of archaic language and paleography, and methods for assessing art and folklorist tradition as sources of history. Oral history and the data of language and archaeology are considered.
Prerequisites: Graduate standing in anthropology.
Lecture + Lab + Other: 3 + 0 + 0
ANTH F645  Gender in Cross-cultural Perspective  
3 Credits  
Offered Spring Even-numbered Years  
Gender as both cultural construction and social relationship is examined through readings in comparative ethnographies portraying gender roles in a broad variety of societies, from hunter-gatherer to industrial. New theoretical and methodological approaches in anthropology for exploring and understanding the experiences of women and men in their cultural variety are presented.  
Prerequisites: Graduate standing.  
Stacked with ANTH F445; WGS F445.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F646  Economic Anthropology  
3 Credits  
Offered Fall Even-numbered Years  
Relationships between economic and other social relations. Pre-industrial societies. Relevance of formal economics to small-scale societies and developing nations. Exchange, formal and substantive economics, market economics, rationality, political economy and the economics of development.  
Prerequisites: Graduate standing.  
Stacked with ANTH F446.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F647  Global to Local Sustainability  
3 Credits  
Offered Fall  
Explores the basic principles that govern resilience and change of ecological and social systems. Principles are applied across a range of scales from local communities to the globe. Working within and across each of these scales, students address the processes that influence ecological, cultural and economic sustainability, with an emphasis on northern examples.  
Prerequisites: Graduate standing.  
Cross-listed with BIOL F647; ECON F647; NRM F647.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F649  Integrated Assessment and Adaptive Management  
3 Credits  
Offered Spring  
An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management. Collectively, the class builds a portfolio of cases and conducts an integrated assessment. Note: In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements.  
Prerequisites: Graduate student standing in a natural science, social science, or interdisciplinary program at UAF or another university.  
Recommended: ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.  
Cross-listed with BIOL F649; ECON F649; NRM F649.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F651  Quaternary Seminar  
3 Credits  
Offered As Demand Warrants  
Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences. This seminar will range widely over diverse interdisciplinary subjects of Quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate paleontology and sedimentology.  
Prerequisites: Graduate standing.  
Cross-listed with GEOS F651.  
Stacked with ANTH F451; GEOS F452.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F652  Research Design and Professional Development Seminar  
3 Credits  
Offered Spring  
How to develop problem-based research in anthropology and prepare research proposals, grant proposals and publications along with critical evaluations of similar material. Topics include preparation of oral presentations for professional meetings, lectures and seminars; curriculum vitae preparation; and project budgeting.  
Prerequisites: Upper-division anthropology course.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F653  Current Perspectives in Cultural Resource Management  
3 Credits  
Offered Fall Odd-numbered Years  
Cultural resource management. Includes historic preservation and environmental law. Reviews pertinent legislation pertaining to the protection of historic properties and presents a series of real world problems confronted by archaeologists. Cultural resource management will be treated historically within a context of the development of American archaeology. Emphasis on practical aspects of career development.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F667  Resilience Seminar I  
1 Credit  
Offered Fall  
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are relevant to sustainability. A considerable portion of the seminar is student-directed, with students assuming leadership in planning seminar activities with the instructor.  
Prerequisites: Enrolled in Resilience and Adaptation Graduate Program.  
Recommended: ANTH F647, BIOL F647, ECON F647 or NRM F647 (taken concurrently).  
Cross-listed with BIOL F667; ECON F667; NRM F667.  
Lecture + Lab + Other: 2 + 0 + 0
ANTH F668 Resilience Seminar II
1 Credit
Offered Spring
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.
Prerequisites: ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.
Cross-listed with BIOL F668; ECON F668; NRM F668.
Lecture + Lab + Other: 2 + 0 + 0

ANTH F670 Oral Sources: Issues in Documentation (a)
3 Credits
Offered Alternate Fall
Preparation for recording and use of oral resources. Examines how meaning is conveyed through oral traditions and personal narratives and the issues involved with recording and reproducing narratives. Includes management of oral recordings, ethical and legal considerations, issues of interpretation and censorship, and the use of new technologies to access and deliver recordings.
Prerequisites: At least one undergraduate ANTH course and one undergraduate HIST course.
Cross-listed with ACNS F670.
Stacked with ANTH F470; ACNS F470.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F672 Culture and History in the North Atlantic (a)
3 Credits
Offered Spring Odd-numbered Years
Ancient Norse culture and society. Includes readings of Old Norse poetry and Icelandic sagas in translation, with secondary analyses and archaeological background. Includes Greenlandic myths and contemporary ethnographic accounts of Iceland, Greenland and the Faroe Islands.
Prerequisites: Graduate standing.
Cross-listed with ACNS F672.
Stacked with ANTH F472.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F675 Political Ecology
3 Credits
Offered Fall Even-numbered Years
Introduction to the field of political ecology. Topics include the sociology of scientific knowledge, traditional and local ecological knowledge, politics of resource management, processes of enclosure and privatization, environmental values, conservation, environmental justice, and colonialism and economic development.
Prerequisites: Graduate standing.
Cross-listed with FISH F675.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F680 Marine Sustainability Internship
2 Credits
Offered Fall
Internship program in marine ecosystem sustainability to broaden students' interdisciplinary training, develop new research tools, build expertise outside their home discipline, gain exposure to careers, and gain a unique perspective on research problems. Internships are for a minimum of 8 weeks and take place during the summer. In the autumn students report on and meet to discuss their internship experiences.
Prerequisites: MSL F652.
Cross-listed with MSL F680 and FISH F680.
Lecture + Lab + Other: 0 + 0 + 5-16

ANTH F685 Discourse in Society: Analyzing Language in Social Context (s)
3 Credits
Offered Fall Even-numbered Years
Hands-on experience in collection, transcription and analysis of naturally-occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.
Prerequisites: ANTH F631, ANTH F670, LING F602, LING F631 or LING F640.
Cross-listed with LING F685.
Stacked with ANTH F485, LING F485.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F698 Non-thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

ANTH F699 Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

Applied Arts (APAR)

APAR F107 Beading
1 Credit
Offered As Demand Warrants
Application of beads to various materials, three kinds of stitches and use of a bead loom.
Lecture + Lab + Other: 1 + 1 + 0

APAR F140 Clothing Construction
1 Credit
Offered As Demand Warrants
Techniques of clothing construction for the home sewer. Development of sewing skills necessary to create garments for the beginner as well as the more experienced sewer.
Lecture + Lab + Other: 1 + 0 + 0

APAR F150 Introduction to Traditional Crafts
1-3 Credits
Offered As Demand Warrants
Introduction to traditional crafts such as basket weaving, birch bark basket-making, beading, carving, canoe or kayak making, etc. Topics vary based on community need and interest and will be identified each semester. Course may be repeated for credit with each new topic.
Lecture + Lab + Other: 1-3 + 0 + 0
APAR F157  Skin Sewing  (a)  
1-2 Credits  
Offered As Demand Warrants  
Fundamentals of skin sewing. Projects (e.g. slippers, mukluks, mittens, fur hats, vests and ruffs) dependent upon student ability and experience.  
Lecture + Lab + Other: 1-2 + 0 + 0

Applied Business (ABUS)

ABUS F051  Bookkeeping For Business  
3 Credits  
Offered As Demand Warrants  
Basic concepts and procedures of practical bookkeeping. Recording and reporting financial data for service and merchandising business. Covers businesses owned by one individual only (sole proprietorships.)  
Lecture + Lab + Other: 3 + 0 + 0

ABUS F070  Job Readiness Skills  
1 Credit  
Offered at Northwest Campus.  
Pre-employment and human relation skills necessary for job success, including how to identify career choices and employment opportunities; how to prepare a resume, job applications, cover and follow-up letters; and how to develop human relation skills. The student will select, prepare and be interviewed for jobs which match his/her skills identified through a self-assessment inventory. Also offered pass/fail as ABUS F070P.  
Lecture + Lab + Other: 1 + 0 + 0

ABUS F101  Principles of Accounting I  
3 Credits  
Accounting concepts and procedures for service businesses and for merchandising businesses owned by a single proprietor. A preparer's approach emphasizes the use of debits and credits to account for the details of business transactions.  
Lecture + Lab + Other: 3 + 0 + 0

ABUS F102A  Keyboarding: Touch Typing  
1-3 Credits  
Instruction in the mastery of alphabetic keyboard touch typing, skill building and document formatting. Skills mastered can be applied to typewriters, CRTs, computer terminals, or other equipment with a keyboard. May be repeated twice for credit.  
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F102B  Keyboarding: Skill Building  
1-3 Credits  
Instruction in the mastery of alphabetic keyboard touch typing, skill building and document formatting. Skills mastered can be applied to typewriters, CRTs, computer terminals, or other equipment with a keyboard. May be repeated twice for credit.  
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F102C  Keyboarding: Document Formatting  
1-3 Credits  
Instruction in the mastery of alphabetic keyboard touch typing, skill building and document formatting. Skills mastered can be applied to typewriters, CRTs, computer terminals, or other equipment with a keyboard. May be repeated twice for credit.  
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F116  Using 10-Key Calculators  
1 Credit  
Offered As Demand Warrants  
Using the efficient 10-key touch method to solve business problems on a calculator. Emphasis is placed on developing occupational proficiency in the use of calculating machines for initial job placement.  
Lecture + Lab + Other: 1 + 0 + 0

ABUS F134  Alphabetic Filing  
1 Credit  
Mastery and use of ARMA filing rules as they apply to alphabetic, subject, numeric and geographic filing.  
Lecture + Lab + Other: 0 + 3 + 0

ABUS F141  Payroll Accounting  
1-3 Credits  
Offered Fall  
Payroll records and laws. Methods to compile and calculate payroll information, earnings, deductions and net wages. City, state and federal tax report forms. For payroll personnel.  
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F143  Office Accounting  
2 Credits  
Offered As Demand Warrants  
Accounting concepts and procedures for the office environment. Emphasis on the use of debits and credits to account for the details of business transactions. Notes payable, notes receivable, interest transactions, bad debts, partnership equity accounting, corporate stock transactions, corporate earnings, capital transactions, bonds, long term liabilities and investments.  
Lecture + Lab + Other: 2 + 0 + 0

ABUS F151  Village-based Entrepreneurship  
1-3 Credits  
Offered As Demand Warrants  
Technical and personal requirements for establishing and maintaining a small business in a rural village; advantages and disadvantages of operating a small business in a rural village. May be offered in three, 1 credit modules (a, b and c).  
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F154  Human Relations  
3 Credits  
Attitudes, self-concepts, personal communication styles, motivation, interactions, positive reinforcements, team building and leadership development.  
Lecture + Lab + Other: 3 + 0 + 0

ABUS F155  Business Math  
1-3 Credits  
Review of basic math computation skills applied to various business areas. Emphasis on applications.  
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F158  Introduction to Tourism  
1-3 Credits  
Offered As Demand Warrants  
Forces which influence international and domestic hospitality, leisure, travel and recreation industries. Socioeconomic models and measure of regional impact, demand and supply.  
Lecture + Lab + Other: 1-3 + 0 + 0
ABUS F160  Principles of Banking  
3 Credits  
Offered As Demand Warrants  
Banking in today's economy. Language and documents of banking, check processing, teller functions, deposits, credit and payment functions, loans, investments, trust, the Federal Reserve System and other regulatory agencies.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F161  Personal and Business Finance  
3 Credits  
Explores the management of personal and family finances, including financial planning, budgeting, time value of money, consumer buying, personal credit, savings and investment, home ownership and mortgages, insurance, estate planning, retirement, consumer fraud, and laws.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F170  Business English  
3 Credits  
Offered As Demand Warrants  
Comprehensive review of grammar, punctuation, capitalization and spelling, with emphasis on business and office occupations.  
**Recommended:** Placement into WRTG F090 or higher.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F175  Customer Service  
3 Credits  
Offered Fall  
Provides customer service as integral to business success. Preparation for effective interaction with customers. Includes trends, interpretation of trends and development of fundamental skills necessary to achieve excellence.  
**Recommended:** Placement into WRTG F090 or higher.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F178  Professionalism  
3 Credits  
Offered As Demand Warrants  
Presents professionalism and personal effectiveness as integral to success in business, professional and entrepreneurial environments. Emphasizes conscious competency and ongoing self-development not only as a speaker and presenter but also as a leader in the workplace and community.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F179  Fundamentals of Supervision  
3 Credits  
Offered Spring  
Effective supervisory concepts including planning, organizing and staffing functions. Communicating and delegating effectively, morale, productivity, decision making, positive position discipline and performance goals development.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F182  Office Procedures  
3 Credits  
Offered As Demand Warrants  
Duties and responsibilities of general office employees including filing, processing mail, telephone communication, meeting the public, office supplies, banking, employment procedures and grooming.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F183  Professional Skills for Job Hunt  
1-3 Credits  
Offered As Demand Warrants  
Practical information necessary to help students choose meaningful employment as well as build their own employment portfolio. Materials used will allow students to learn more about themselves, engage in personal assessment and learn how this information relates to different careers. Students will complete target resumes, cover letters, follow-up letters, applications, job search strategies, mock job interviews and a professional portfolio. This class is designed for students embarking into the job market.  
**Lecture + Lab + Other:** 1-3 + 0 + 0

ABUS F188  Personal Income Tax  
1 Credit  
Offered Fall  
Taxable income, deductions, credit, exemptions, and computation. Computer use, record keeping methods, tax forms and new tax laws.  
**Lecture + Lab + Other:** 1 + 0 + 0

ABUS F199  Practicum in Applied Business  
1-3 Credits  
Supervised training and work experience. Analysis of work experience and relationship of the job to career and academic goals. Managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning.  
**Prerequisites:** Permission of instructor.  
**Lecture + Lab + Other:** 0 + 0 + 0

ABUS F201  Principles of Accounting II  
3 Credits  
Introduction to accounting concepts and procedures for a business. Emphasis is on the accounting cycle and the recording, summarizing and interpretation of accounting data.  
**Recommended:** ABUS F101 or ACCT F261X.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F202  Principles of Accounting III  
3 Credits  
Continuation of elementary accounting concepts and procedures with the introduction of cost accounting principles for manufacturing and service operations. Job order costing, process costing, cost-volume profit, budgeting and variances are introduced.  
**Recommended:** ABUS F101 and F201; or ACCT F261X and ACCT F262.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F203  Accounting Capstone  
3 Credits  
Accounting procedures in retail, service and trade businesses. The complete accounting cycle, including record keeping, posting and preparation of financial statements, bank reconciliation, payroll computations and closing books. Accounts receivable, accounts payable, purchasing, credit and other accounting requirements.  
**Recommended:** ABUS F101; ABUS F141; ABUS F220; concurrent enrollment or completion of ABUS F201.  
**Lecture + Lab + Other:** 3 + 0 + 0

ABUS F207  Machine Transcription  
2 Credits  
Offered As Demand Warrants  
Training in machine transcription with emphasis on mailable copies. Review of language skills and vocabulary included.  
**Lecture + Lab + Other:** 2 + 0 + 0
ABUS F208  Medical Machine Transcription
2 Credits
Offered As Demand Warrants
Instruction and practice in formatting medical papers including Medicare and admission forms, a dental report, preparing patient histories, medical reports, file cards and other medical documents. Practice in transcribing from machine dictation and in using medical terminology correctly.
Recommended: ABUS F207.
Lecture + Lab + Other: 2 + 0 + 0

ABUS F209  Legal Machine Transcription
2 Credits
Offered As Demand Warrants
Instruction and practice in formatting legal papers including a lease, bill of sale, subpoena, stipulations, interrogatories, notices and various types of orders. Transcription from machine dictation; using the language of the law correctly.
Lecture + Lab + Other: 2 + 0 + 0

ABUS F210  Income Tax
3 Credits
Income tax fundamentals. Includes how to complete basic income tax forms/schedules for individuals and small business owners. Covers taxable income, deductions, credits, exemptions, computation, record keeping methods, new tax laws and strategies to reduce taxes.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F220  Microcomputer Accounting: QuickBooks
3 Credits
Basic microcomputer principles. Includes entering transactions, analyzing results, correcting errors and organizing business finances. QuickBooks is a widely used accounting software application.
Recommended: ABUS F101.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F221  Microcomputer Accounting
3 Credits
Computer processing of accounting transactions. Software packages, microcomputer systems and hardware, computer terminology, system analysis and actual computer operations in accounting.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F223  Real Estate Law
3 Credits
Offered As Demand Warrants
Deeds and conveyances, mortgages, liens, rentals, appraisals and other transactions in real estate and law.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F231  Introduction to Personnel
1-3 Credits
Offered As Demand Warrants
Company organizational structure, job analysis, staffing and organization, employee growth and development, employee supervision and developing leadership skills. May be offered in three one credit modules.
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F232  Contemporary Management Issues
3 Credits
Management functions, including planning, organizing, staffing, directing and controlling, human aspects of management, and decision making.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F233  Financial Management
3 Credits
Fundamental understanding of the concepts, techniques and practices in financial management. Financial statements analysis, cash flow and financial planning, concept of time value of money, risk and return, bond valuation, capital budgeting, internal financial controls and audit.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F234  Introduction to Investing
3 Credits
An in-depth study of investment for personal use. The overall investment environment is described and conceptual tools needed by investors are presented. Popular investment vehicles such as common stocks, bonds, preferred stocks, convertible securities, and mutual funds are addressed.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F235  Fund Accounting for Nonprofits
3 Credits
Offered Fall
Accounting for nonprofit organizations, governmental units, health care providers, voluntary health and welfare organizations, public schools, colleges, universities and other organizations using fund accounting.
Recommended: ABUS F101.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F241  Applied Business Law I
3 Credits
Legal aspects of business problems. Principles, institutions and administration of law in contracts, agency, employment, personal sales and property ownership.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F242  Employment Law
3 Credits
Offered As Demand Warrants
Labor and employment law with emphasis on case analysis.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F256  Small Hotel, Bed and Breakfast, and Lodge Operations
1-3 Credits
Offered As Demand Warrants
Introduction to hospitality industry focusing on the development and operation of small hotels, bed and breakfast accommodations, and lodge operations. May be offered in three 1 credit modules.
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F260  Marketing Practices
3 Credits
Designed to give students a real-world view of basic marketing principles and practices. Emphasizes planning strategy and application of marketing concepts in analysis of case studies. Examines nature of marketing and its environment, selecting target markets and developing a market mix: product, price, promotion and distribution.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F263  Public Relations
3 Credits
Public relations is image making, repairing and promoting. PR involves promotion, selling, advertising and creating public, corporate, government, church and other institutional images. Public relations professionals need skills in psychology, writing, mass media theory, image construction, persuasion and audience analysis. Introduces public relations and the role it plays in our world and society.
Lecture + Lab + Other: 3 + 0 + 0
ABUS F264  Filing/Records Management
3 Credits
Offered As Demand Warrants
Instruction in basic alphabetic storage with filing rules and cross-referencing and procedures for retrieving records manually. Includes adaptations of the alphabetic storage method including geographic, numeric and subject; storing and retrieving special records (card files, visible records, microrecords); organization and operation of records management programs and control of records systems.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F265  Seminar in Applied Marketing
3 Credits
Offered Spring
Analysis of the managerial relevance of current issues in marketing as found in the professional and/or popular marketing literature. A historical perspective will be provided through classic readings from the literature. Students will be expected to read, analyze and discuss assigned readings in a seminar atmosphere with a view toward understanding the rationale of applied marketing management practices such as theory, marketing mix and ethics. The relation and role of marketing, relative to other functional areas of the firm, will be explored.
Prerequisites: ABUS F260.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F267  Transportation and Logistics Management
1-3 Credits
Offered As Demand Warrants
Understanding of issues and challenges concerning structure and management of air, sea, rail and highway transportation systems. Emphasis on effective management of the transporting of people and goods intra-Alaska and to destinations that are served from Alaska.
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F268  Rural Tourism: Planning and Principles
1-3 Credits
Introduction to rural tourism planning and principles. Students examine rural tourism attractions and trends, tourism planning and policy formation, quality standards, and cultural and environmental impacts of tourism.
Cross-listed with RD F268.
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F269  Food and Beverage Management
1-3 Credits
Offered As Demand Warrants
Development of a successful food and beverage system from its inception to operation. Menu planning, purchasing, preparation, service and food/beverage cost control.
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F271  Business Communications
3 Credits
Composition and evaluation of various kinds of common communications between a business person and associates, customers and dealers. Included are interoffice memos, letters, reports and oral communications.
Recommended: Placement in WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F272  Small-Business Planning
3 Credits
Offered Spring
Elements of small-business planning processes including the components of a written business plan.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F273  Managing a Small Business
3 Credits
Offered Spring
Entrepreneurship and management, starting a new business, buying an existing business or franchise. Managing, marketing, staffing, financing, budgeting, pricing, operational analysis and controls.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F274  Business in the Digital World
1-3 Credits
Exploration of trends in internet commerce, websites, social media and digital advertisement. Analysis of the elements needed to build and manage a successful e-commerce or small business. Website planning and creation include information design, navigation design and site presentation.
Recommended: Basic knowledge of internet and social media.
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F275  Applied International Business
3 Credits
Offered As Demand Warrants
Case study and research-oriented approach to cultural, economic, political, social, logistical and other business issues in the ever-changing international business environment.
Lecture + Lab + Other: 3 + 0 + 0

ABUS F288  Professional Certification Preparation
1-3 Credits
Offered As Demand Warrants
Prepares students for national or industry specific certification examination. Course may be taken three times for a maximum of 4 credits. Course is intended as preparation for certification exam.
Recommended: Experience or course work in exam area.
Lecture + Lab + Other: 1-3 + 0 + 0

ABUS F299  Practicum in Applied Business
1-9 Credits
Supervised training and work experience (local or foreign study abroad). Analysis of work experience and relationship of the job to career and academic goals. Managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 0 + 0 + 0

Applied Management (BAM)

BAM F320  Management
3 Credits
Offered As Demand Warrants
This course introduces and explores the concepts, theories, and principles of management. We will study the basic managerial functions of planning, organization, staffing, directing, and controlling resources to accomplish organizational goals. Special consideration given to the different roles managers provide and the unique skills required to carry out those roles.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0
BAM F352  Accounting and Finance
3 Credits
Offered As Demand Warrants
This course introduces non-business managers to the basics of accounting and financing. Topics that will be covered include cost accounting, budgeting, cash flows, and how to read a basic financial report.
Prerequisites: MATH F122X.
Lecture + Lab + Other: 3 + 0 + 0

BAM F462  Project Management
3 Credits
Offered As Demand Warrants
This course is designed to incorporate management strategies with key components of project management fundamentals into a setting that managers would use. It stresses the importance of project management in successful organizations and the role the project management plays in business strategies.
Prerequisites: BA F343; BAM F320; BAM F352; BA F360; WRTG F111X; upper division standing.
Lecture + Lab + Other: 3 + 0 + 0

Applied Photography (APHO)

APHO F074  Process/Print Color Negatives
1 Credit
Offered As Demand Warrants
Developing print film using the Kodak Flexicolor C-41 and Hobby-pac processes. Making proof sheets and enlargements using Extaprint 2, Hobby-pac and Ektaflex processes. Students must have a camera and two rolls of film.
Lecture + Lab + Other: 1 + 0 + 0

Arabic (ARAB)

ARAB F100A  Elementary Arabic 1A  (h)
3 Credits
Offered As Demand Warrants
Designed for beginning students of the Arabic language and culture, with emphasis on the fundamentals of the spoken language, vocabulary and grammatical structure. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
Lecture + Lab + Other: 3 + 0 + 0

ARAB F100B  Elementary Arabic 1B  (h)
3 Credits
Offered As Demand Warrants
Continuation of ARAB F100A. Increasing emphasis on the fundamentals of the spoken language, vocabulary and grammatical structure, and expanded information on culture. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
Prerequisites: ARAB F100A.
Lecture + Lab + Other: 3 + 0 + 0

Arctic and Northern Studies (ACNS)

ACNS F201  The Circumpolar North: An Introductory Overview  (a)
3 Credits
Offered Every Fall
This course will introduce students to the human experience in the circumpolar North by exploring such themes in the social sciences and humanities as: a) the differences and commonalities between indigenous and non-indigenous visions, assumptions and experiences; b) the emphasis on nature and wilderness in popular culture and nature’s inherent value to human physical and spiritual well being; c) political issues such as alienation from core political, economic and population centers and tension between pro-development and pro-conservationist forces; and d) how Northern literature reflects these and other aspects of human experience in the North. Course is taught online.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F205  Leadership, Citizenship and Choice  (a)
3 Credits
History of democratic principles in America and how people can contribute to political and community life in the local, state and national arenas as leaders and citizens. Examines ethical dilemmas of leadership, and political and social issues facing Alaska and American societies. Course includes an experiential learning component.
Cross-listed with PS F205.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F223X  Alaska Native Music  (h, a)
3 Credits
Introductory course devoted to the study of indigenous musical cultures throughout Alaska and neighboring regions. Emphasis on musical systems in terms of their respective sounds and their relationship to culture and society, cross-cultural comparisons and a focus on both past and present musical styles.
Cross-listed with ANS F223X; MUS F223X.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 3 + 0 + 0

ACNS F424  Field Artists of the North  (O, h, a)
3 Credits
Offered As Demand Warrants
Study of field artists and their work, from the explorer artists of yesteryear to today's field artists using a variety of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of a field artist.
Prerequisites: ART F105; a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or COJO F203); COJO F131X or COJO F141X.
Crosslisted with ART F424.
Stacked with ART F624; ACNS F624.
Lecture + Lab + Other: 3 + 0 + 0
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered</th>
<th>Cross-listed with</th>
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<tr>
<td>ACNS F425</td>
<td>Visual Images of the North</td>
<td>(W, a)</td>
<td>WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X</td>
<td>Stackable</td>
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<tr>
<td>ACNS F427</td>
<td>Polar Geography</td>
<td>(s, a)</td>
<td>GEOG F101X or GEOG F111X.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F449</td>
<td>Northern and Environmental Literature</td>
<td>(h, a)</td>
<td>WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; sophomore standing.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F470</td>
<td>Oral Sources: Issues in Documentation</td>
<td>(h, a)</td>
<td>ANTH F670; ACNS F670.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F476</td>
<td>Russian Culture and Society in the 21st Century</td>
<td>(h)</td>
<td>WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; junior standing.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F484</td>
<td>Seminar in Northern Studies</td>
<td>(O, W, s, a)</td>
<td>WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; junior standing.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F492</td>
<td>Research Methods and Sources in the North</td>
<td>(a)</td>
<td>ACNS F484.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F503</td>
<td>Public Policy</td>
<td>(h)</td>
<td>PS F403.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F600</td>
<td>Perspectives on the North</td>
<td>(a)</td>
<td>ACNS F600.</td>
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<td>ACNS F603</td>
<td>Research Methods and Sources in the North</td>
<td>(a)</td>
<td>PS F603.</td>
<td>Stackable</td>
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<tr>
<td>ACNS F606</td>
<td>Visual Images of the North</td>
<td>(W, a)</td>
<td>ACNS F425.</td>
<td>Stackable</td>
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ACNS F604  Modern Scandinavia  
3 Credits  
Offered Spring Odd-numbered Years  
Scandinavia (Denmark, Finland, Iceland, Norway and Sweden) from the 19th century to the present: the development of parliamentary democracy and welfare systems, cooperation and neutrality, and Scandinavia's experience in the world wars.  
Stacked with HIST F404.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F610  Northern Indigenous Peoples and Contemporary Issues  
(a)  
3 Credits  
Offered Fall Odd-numbered Years  
This course examines a number of issues affecting northern indigenous peoples from a comparative perspective, including perspectives from Alaska, Canada, Greenland and the Soviet Union. Issues include the impact of the alienation of land on which these peoples depend; the relationship between their small, rural microeconomies and the larger agroindustrial market economies of which they are a part; education, language loss and cultural transmission; alternative governmental policies towards indigenous peoples; and contrasting world views.  
Prerequisites: Graduate standing or upper-division standing.  
Cross-listed with ANTH F610.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F611  Environmental History  
(a)  
3 Credits  
Offered Spring Even-numbered Years  
Discussion of significant works of environmental history. Cultural history of the landscape in world civilization with emphasis on Western Europe and North America. Discussion of interdisciplinary approaches to the history of environment and cooperative work across disciplines.  
Prerequisites: Graduate standing.  
Stacked with HIST F411.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F613  Wilderness and Environmental Psychology  
3 Credits  
Examines the relationships between people and the natural and built environments. Topics include the effects of arctic environments on physical and psychological health; preferences for different types of natural settings; the design of residential and community environments. Topics include the effects of arctic environments on physical and psychological health; preferences for different types of natural settings; the design of residential and community environments.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F620  Images of the North  
(a)  
3 Credits  
Offered Spring Even-numbered Years  
Interdisciplinary approaches to the variety of images created about and by the people and environment of the circumpolar North. The course will analyze conceptualizations of the North as expressed in a number of media such as film, art, literature, travel journals and oral tradition employing methodologies from many disciplines. Course may be repeated once for credit when content varies.  
Prerequisites: Graduate standing.  
Cross-listed with ENGL F620.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F624  Field Artists of the North  
(a)  
3 Credits  
Offered As Demand Warrants  
Study of field artists and their work, from the explorer artists of yesteryear to today's field artists using a variety of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of a field artist.  
Prerequisites: ART F105; studio art course such as ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or COJO F203.  
Cross-listed with ART F624.  
Stacked with ART F424.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F625  Visual Images of the North  
(a)  
3 Credits  
Examines the imagery of the people and landscapes of the polar regions, centering on such issues as depiction of Arctic peoples and customs by Europeans, documentary versus artistic goals, translations from original sketches to published images, relationship of polar imagery to prevailing historical styles and the influence of changing world views on modes of polar representation between the 16th and 20th centuries.  
Cross-listed with ART F625.  
Stacked with ART F425; ACNS F425.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F627  Polar Geography  
(a)  
3 Credits  
Offered Spring Odd-numbered Years  
Comparative physical, cultural, political and economic geography of the Circumpolar North and Antarctic regions. Special attention to Arctic natural resource development, climate change in both polar regions and polar geopolitics.  
Prerequisites: Graduate standing.  
Cross-listed with GEOG F627.  
Stacked with ACNS F427; GEOG F427.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F640  Ethics and Reporting in the Far North  
(a)  
3 Credits  
Historical overview of media coverage of the Northern frontier with focus on journalistic ethics. A comparison is made to the media climate in Third World countries.  
Lecture + Lab + Other: 3 + 0 + 0  

ACNS F647  U.S. Environmental Politics  
(a)  
3 Credits  
Offered Spring  
U.S. political institutions as they relate to making policies for protecting the quality of the natural environment. The politics of nuclear waste, endangered species, air and water pollution, and wilderness preservation. Analysis of the National Environmental Policy Act, sustainable development, limits to growth and other topics. Course is also available online.  
Prerequisites: Graduate Standing.  
Cross-listed with PS F647.  
Stacked with PS F447.  
Lecture + Lab + Other: 3 + 0 + 0
ACNS F648  Environmental Politics of the Circumpolar North  (a)  3 Credits
Overview of how environmental politics and policy as a field of study relates to the Arctic region. Analysis of various threats to the Northern environment, focusing on the policy making institutions at selected Arctic Rim nations, as well as strategies to deal with environmental problems in an international context. Course is also available online.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F652  International Relations of the North  (a)  3 Credits
Examination of the international strategies of circumpolar states. Consideration of theoretical and practical elements of strategy formation in major issue areas such as national security, the political economy, human rights and scientific exchange.
Prerequisites: Graduate standing.
Stacked with PS F452.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F654  International Law and the Environment  (a)  3 Credits
International environmental law. Includes international case law regulating the sea, airspace, outer space and the polar regions; comprehensive international regulatory and legal instruments to protect the environment (e.g., the U.N. Framework Convention on Climate Change); and the doctrines, principles and rules of international law that are basic to an understanding of international legal regimes and the environment. Course is also available online.
Prerequisites: Graduate standing.
Cross-listed with PS F654.
Stacked with PS F454.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F655  Political Economy of the Global Environment  (a)  3 Credits
Interactions between basic aspects of the global economy (international trade, investment and development) and the natural environment. Topics include the economic impact of global environmental agreements and the environmental impact of global markets, transnational corporations and development assistance by organizations such as the World Bank.
Prerequisites: Graduate standing.
Cross-listed with PS F655.
Stacked with PS F455.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F656  Science, Technology and Politics  (a)  3 Credits
Relationship of science, technology and politics. Connections among scientific knowledge, technology, technological innovations, politics and power. Gender roles and the influence of Western science. Both historical and comparative aspects are included. Course is also available online.
Prerequisites: Graduate standing.
Recommended: PS F101X.
Cross-listed with PS F656.
Stacked with PS F456.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F657  Comparative Indigenous Rights and Policies  (a)  3 Credits
Offered As Demand Warrants
Comparative approach to analyzing Indigenous rights and policies in different nation-state systems. Multiple countries and specific policy developments examined for factors promoting or limiting self-determination.
Prerequisites: Graduate Standing.
Cross-listed with PS F650.
Stacked with ANS F450; PS F450.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F658  Comparative Environmental Politics  (a)  3 Credits
Offered Fall Odd-numbered Years
Enduring issues of the field of comparative politics and their relation to global environmental problems. Biodiversity, transboundary pollution capacity, political processes and organizations, and international commitments all potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.
Prerequisites: Graduate standing.
Recommended: PS F201X.
Cross-listed with PS F658.
Stacked with PS F458.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F660  Government and Politics of Canada  (a)  3 Credits
Offered Spring Odd-numbered Years
The Canadian political system, covering the Canadian constitution, federal structure, parliamentary government and public policy, as well as contemporary issues concerning Native rights and the Canadian North. Students will complete a major research paper on specific policy areas (language, education, health care, environment, natural resources, foreign relations).
Prerequisites: Graduate standing.
Cross-listed with PS F660.
Stacked with PS F460.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F661  History of Alaska  (a)  3 Credits
Offered Fall
Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial and military Alaska, statehood, Alaska Native Claims Settlement Act of 1971 and the Alaska National Interest Lands Act of 1980.
Cross-listed with HIST F662.
Stacked with HIST F461.
Lecture + Lab + Other: 3 + 0 + 0
ACNS F662  Alaska Government and Politics  (a)
3 Credits
Offered Spring Odd-numbered Years
Alaska’s government and politics, in the context of American state and local government, and politics and governments of circumpolar Northern nations. Topics include political history, constitution, political parties, interest groups, elections, public opinion, governor, legislature, judiciary, administration and local governments. Compares Alaska to the contiguous 48 states and subnational governments of the circumpolar North; examines how government institutions and processes respond to social, environmental and political changes of Northern communities.
Prerequisites: Graduate standing.
Cross-listed with PS F662.
Stacked with PS F462.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F663  Imperial Russia, 1700-1917  (a)
3 Credits
Offered Fall Odd-numbered Years
This course covers Russian history from the reign of Peter the Great (1682-1725) until the collapse of the Tsarist regime in February 1917. Topics will include Russia’s complex relationship with Western Europe, the challenges posed by modernization, the Russian Empire as a multi-national state, and the emergence of the revolutionary movement.
Prerequisites: Graduate standing.
Cross-listed with HIST F663.
Stacked with HIST F463.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F664  Soviet and Post-Soviet Russia  (a)
3 Credits
Offered Fall Even-numbered Years
Russia from the 1917 Revolution to the present. This course examines the attempts to build a socialist utopia in the former Russian empire and its impact on the peoples of that region and the modern world. We will consider the political, economic, social and cultural nature of the Soviet state. Major themes include cultural transformation, industrialization, Stalinism, the Soviet Union as a multi-national empire, the Cold War, the collapse of the Soviet state, and the new Russia of Yeltsin and Putin.
Prerequisites: Graduate standing.
Cross-listed with HIST F664.
Stacked with HIST F464.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F668  Government and Politics of Russia  (a)
3 Credits
Offered Spring Even-numbered Years
Current developments in Russia from a number of perspectives. The effect of history and geography on political change; the nature of Russian government and society; the legacies of Lenin, Stalin and Gorbachev; and the ideological nature of regimes and leadership. Economic forces and the political struggle in governance; revolution, democracy and reform; and the international role of Russia, particularly in relation to the former Soviet republics, Eastern Europe and other border areas.
Prerequisites: PS F201X; graduate standing.
Cross-listed with PS F668.
Stacked with PS F468.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F669  Arctic Politics and Governance
3 Credits
Offered Fall
This course traces current developments in Arctic politics and governance from multiple perspectives, including exploring interests, processes, and behaviors of Arctic governments and non-state actors, individually and collectively. The course surveys the formal and informal institutions that govern resource development, pollution, shipping, state-indigenous relations and security. A background in comparative politics and/or international relations is also recommended.
Prerequisites: PS F450, PS F452 or PS F454; graduate standing.
Cross-listed with PS F669.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F670  Oral Sources: Issues in Documentation  (a)
3 Credits
Offered Alternate Fall
Preparation for recording and use of oral resources. Examines how meaning is conveyed through oral traditions and personal narratives and the issues involved with recording and reproducing narratives. Includes management of oral recordings, ethical and legal considerations, issues of interpretation and censorship, and the use of new technologies to access and deliver recordings.
Prerequisites: At least one undergraduate ANTH course and one undergraduate HIST course.
Cross-listed with ANTH F670.
Stacked with ANTH F470; ACNS F470.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F672  Culture and History in the North Atlantic  (a)
3 Credits
Offered Spring Odd-numbered Years
Ancient Norse culture and society. Includes readings of Old Norse poetry and Icelandic sagas in translation, with secondary analyses and archaeological background. Includes Greenlandic myths and contemporary ethnographic accounts of Iceland, Greenland and the Faroe Islands.
Prerequisites: Graduate standing.
Cross-listed with ANTH F672.
Stacked with ANTH F472.
Lecture + Lab + Other: 3 + 0 + 0

ACNS F675  Historiography Capstone  (W, s)
3 Credits
Offered Fall
Seminar discussions and lectures introduce philosophical approaches to history. Examines various methodological approaches to historical inquiry. Includes the nature of historical evidence, questioning of the role of truth and objectivity in history, an examination of the role of the historian in interpreting historical evidence, and different interpretations of historical events and actions. Designed for history majors and minors, and graduate students seeking to conduct historical research.
Prerequisites: Graduate standing.
Stacked with HIST F475.
Lecture + Lab + Other: 3 + 0 + 0
ACNS F681 Polar Exploration and Its Literature (a)  3 Credits
Offered Spring Even-numbered Years
A survey of polar exploration efforts of all Western nations from A.D. 870 to the present and a consideration of the historical sources of this effort.
Prerequisites: Graduate standing.
Cross-listed with HIST F490.
Stacked with HIST F483.
Lecture + Lab + Other: 1 + 3 + 0
ACNS F683 20th-century Circumpolar History (a)  3 Credits
Offered Spring Even-numbered Years
A comparative history of the circumpolar North, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze and scientific research in the Arctic.
Prerequisites: Graduate standing.
Cross-listed with HIST F483.
Lecture + Lab + Other: 3 + 0 + 0
ACNS F689 Thesis Writing Workshop (a)  3 Credits
Offered Spring
Provides an opportunity for students in and out of Arctic and Northern Studies to develop writing skills in a workshop context. By the end of the semester, students will submit academic article-length work that has been re-drafted and re-submitted several times. The goal is to understand writing as a complex social interaction between writer and reader and to practice writing as a recursive process that involves drafting, revising and editing, and to recognize and value the creativity, independent thinking and intellectual risk-taking involved in effective academic writing.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0
ACNS F690 Researching and Writing Northern History (a)  3 Credits
Offered Spring Odd-numbered Years
Exploration of the craft and methodology of historical research in the North. Course may be repeated for credit when content varies.
Prerequisites: Graduate standing.
Stacked with HIST F490.
Lecture + Lab + Other: 1 + 3 + 0
ACNS F692 Seminar  3 Credits
Lecture + Lab + Other: 0 + 0 + 0
ACNS F698 Non-thesis Research/Project  1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0
ACNS F699 Thesis  1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

Arctic Skills (ARSK)

ARSK F147A Arctic Survival (a)  1-2 Credits
Offered As Demand Warrants
Designed for those individuals traveling for work or recreation in the Arctic. The focus is on preparation and development of knowledge and skills to cope effectively with the difficulties and dangers to which travelers are frequently exposed. Topics include appropriate survival kits, clothing options, nutrition and hydration needs, shelter construction, signal development, cold weather injuries and safety issues related to modes of transportation. The two credit option includes two field practicums. May be repeated for a maximum of 4 credits.
Recommended: College level reading skills.
Lecture + Lab + Other: 1-2 + 0 + 0
ARSK F147B Arctic Survival (a)  1-2 Credits
Offered As Demand Warrants
Designed for those individuals traveling for work or recreation in the Arctic. The focus is on preparation and development of knowledge and skills to cope effectively with the difficulties and dangers to which travelers are frequently exposed. Topics include appropriate survival kits, clothing options, nutrition and hydration needs, shelter construction, signal development, cold weather injuries and safety issues related to modes of transportation. The two credit option includes two field practicums. May be repeated for a maximum of 4 credits.
Recommended: College level reading skills.
Lecture + Lab + Other: 1-2 + 0 + 0
ARSK F170 EMT: Emergency Medical Technician I (a)  6 Credits
How to provide basic life support such as splinting, hemorrhage control, oxygen therapy, suction, CPR and use of automated external defibrillators (AEDs). EMT I is the foundation of all emergency medical training. Mastering of EMT I level knowledge and techniques must occur before moving on to advanced levels.
Cross-listed with EMS F170.
Lecture + Lab + Other: 4 + 4 + 0

Art (ART)

ART F105 Beginning Drawing (h)  3 Credits
Basic elements in drawing. Emphasis on a variety of techniques and media.
Lecture + Lab + Other: 1 + 4 + 0
ART F127 Introduction to Weaving (h)  3 Credits
Fundamentals of weaving taught through basic techniques and processes for four-shaft loom woven structures. Includes loom terminology and function, warping and threading, basic pattern drafting and designing, color and texture. Introduces tapestry techniques.
Lecture + Lab + Other: 1 + 4 + 0
ART F161 Two-dimensional Digital Design (h)  3 Credits
This course provides an introduction to design principles and digital skills necessary for fine arts students. The course covers fundamentals of visual design, drawing, and painting techniques on computer. Special fees apply.
Lecture + Lab + Other: 1 + 4 + 0
ART F162  Color and Design  (h)  
3 Credits  
Fundamentals of pictorial form, color principles and interactions. Emphasis on traditional art media rendered two-dimensionally on paper. This course is recommended for students becoming B.A., B.F.A. Drawing, Painting, and Printmaking majors.  
Lecture + Lab + Other: 1 + 4 + 0

ART F163  Three-dimensional Design  (h)  
3 Credits  
This course is a hands-on introduction to fundamental concepts and organization of three-dimensional forms, including applied art and industrial design. Various materials such as wire, clay, silicone, and paper will be explored. This course is recommended for students becoming B.A. or B.F.A. Art majors and students interested in exploring material manufacturing processes.  
Lecture + Lab + Other: 1 + 4 + 0

ART F200X  Explorations in Art  (h)  
3 Credits  
Understanding and appreciation of art through exploration of its diverse styles, influences and developments. Topics include the creative process, artistic forms of expression, historical and cultural contexts, the role of the artist in society and popular movements and trends.  
Prerequisites: Placement in WRTG F111X, sophomore standing.  
Attributes: UAF Core Aesthetic Appreciation, UAF GER Arts Req

ART F201  Beginning Ceramics  (h)  
3 Credits  
Foundation experience with clay. Overview of the medium of ceramics and its possibilities.  
Lecture + Lab + Other: 1 + 4 + 0

ART F205  Intermediate Drawing  (h)  
3 Credits  
Exploration of pictorial composition and creative interpretation of subjects.  
Prerequisites: ART F105.  
Lecture + Lab + Other: 1 + 4 + 0

ART F207  Beginning Printmaking  (h)  
3 Credits  
Concepts and techniques of printmaking. Subject areas taken from relief, intaglio, serigraphy and lithography.  
Prerequisites: ART F105; ART F161 or ART F162 or ART F163.  
Lecture + Lab + Other: 1 + 4 + 0

ART F209  Beginning Metalsmithing and Jewelry  (h)  
3 Credits  
Basic techniques of fine metalsmithing and jewelry.  
Prerequisites: ART F105; ART F161 or ART F162 or ART F163.  
Lecture + Lab + Other: 1 + 4 + 0

ART F211  Beginning Sculpture  (h)  
3 Credits  
Basic sculpture techniques and principles.  
Prerequisites: ART F105; ART F161 or ART F162 or ART F163.  
Lecture + Lab + Other: 1 + 4 + 0

ART F213  Beginning Painting (Acrylic or Oil)  (h)  
3 Credits  
Basic materials and techniques in either medium. Pictorial principles and organization of paintings.  
Prerequisites: ART F105; ART F161 or ART F162 or ART F163.  
Lecture + Lab + Other: 1 + 4 + 0

ART F223  Watercolor Painting  (h)  
3 Credits  
Offered As Demand Warrants  
Painting in various transparent and opaque media (watercolor, tempera, polymer, casein). Emphasis on techniques and subjects.  
Prerequisites: ART F105; ART F161 or ART F162 or ART F163.  
Lecture + Lab + Other: 1 + 4 + 0

ART F227  Woven Fabric Design  (h)  
3 Credits  
Continuation of ART F127. Exploration of color and texture in loom structures. Includes basic fiber technology and color theory. Topics vary each semester and include blocks, units, laces, twills and R.A.G.S. recycle. Course may be repeated for credit when topic changes.  
Prerequisites: ART F127.  
Lecture + Lab + Other: 3 + 0 + 0

ART F231  Previsualization and Preproduction  (h)  
3 Credits  
Offered Fall  
Previsualization is a collaborative process that generates preliminary versions of shots or sequences, predominantly using 3D animation tools and a virtual environment. It enables filmmakers to visually explore creative ideas, plan technical solutions and communicate a shared vision for efficient production. Laying a foundation for cinema production, this course will explore screenwriting, storyboarding, previsualization animation, animations and film pre-production approaches. This course will focus on developing original stories for animation or dramatic film productions and preparing those concepts for cinematic production.  
Cross-listed with FLPA F231.  
Lecture + Lab + Other: 3 + 0 + 0

ART F233  Beginning Field Painting  (h)  
1 Credit  
Offered As Demand Warrants  
Introductory course consists of three or four days painting at outdoor locations, usually in the summer. Lectures and directed study are used to establish student understanding of landscape painting from drawing and/or small painted studies to finished oil and acrylic paintings. Use of basic painting and drawing materials will be covered. Concepts of space, light, color, composition, scale and specific elements of landscape paintings such as water, reflections, skies, aerial and linear perspective will be addressed. Sessions will be in the field with some supporting sessions in the studio. Courses in the past have been held at Denali, McCarthy, Brooks Range, Valdez and Cordova.  
Recommended: ART F105; ART F213.  
Lecture + Lab + Other: 0.5 + 1.5 + 0

ART F261X  History of World Art  (h)  
3 Credits  
Offered Fall  
Origins of art and its development from the beginning through contemporary painting, sculpture and architecture. ART F261X - ART F262X may be taken in reverse order; however, course content is presented in a chronological sequence beginning with fall semester.  
Prerequisites: Sophomore standing.  
Attributes: UAF GER Arts Req

Lecture + Lab + Other: 3 + 0 + 0
ART F262X  History of World Art  (h)
3 Credits
Offered Spring
Origins of art and its development from the beginning through contemporary painting, sculpture and architecture. ART F261X - ART F262X may be taken in reverse order; however, course content is presented in a chronological sequence beginning with fall semester.
Prerequisites: Sophomore standing.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 3 + 0 + 0

ART F268  Beginning Native Art Studio  (h, a)
3 Credits
Understanding and applying traditional designs and technologies of Native art.
Prerequisites: ART F105.
Cross-listed with ANS F268.
Lecture + Lab + Other: 1 + 4 + 0

ART F271  Beginning Computer Art  (h)
3 Credits
Offered Fall
Basic techniques of computer art. The course covers basic animation, motion graphics, digital painting and digital design.
Prerequisites: ART F161.
Lecture + Lab + Other: 1 + 4 + 0

ART F283  Basic Darkroom Photography  (h)
3 Credits
Photography fundamentals, including use of an adjustable camera, film and exposure techniques, filters and flash techniques. Darkroom procedures including black and white film processing and printing, photograph design and composition. Students must have use of an adjustable camera.
Cross-listed with COJO F203.
Lecture + Lab + Other: 2 + 3 + 0

ART F284  Basic Digital Photography  (h)
3 Credits
Introduction to the technical and aesthetic aspects of basic digital photography via digital SLR cameras and editing through digital photo suites such as Adobe Photoshop. Students are expected to have intermediate computer knowledge. Topics include controlling digital SLRs on manual settings, photographing creatively, basic and advanced editing techniques, negative scanning and digital printing.
Cross-listed with COJO F204.
Lecture + Lab + Other: 3 + 0 + 0

ART F301  Intermediate Ceramics  (h)
3 Credits
Continuation of beginning ceramics. Emphasis on developing proficiency in ceramic studio practices and processes.
Prerequisites: ART F201.
Lecture + Lab + Other: 1 + 4 + 0

ART F305  Advanced Drawing  (h)
3 Credits
Offered Spring
Development and refinement of individual problems in drawing. Can be repeated for credit with permission of instructor.
Prerequisites: ART F205.
Lecture + Lab + Other: 1 + 4 + 0

ART F307  Intermediate Printmaking  (h)
3 Credits
Continuation of ART F207 with emphasis on refinement of technique and color printing.
Prerequisites: ART F207.
Lecture + Lab + Other: 1 + 4 + 0

ART F309  Intermediate Metalsmithing and Jewelry  (h)
3 Credits
Further investigation of material processes and techniques; some emphasis on design.
Prerequisites: ART F209.
Lecture + Lab + Other: 1 + 4 + 0

ART F311  Intermediate Sculpture  (h)
3 Credits
Exploration in materials and concepts of sculpture. Emphasis on personal creativity and skill development.
Prerequisites: ART F211.
Lecture + Lab + Other: 1 + 4 + 0

ART F313  Intermediate Painting  (O, h)
3 Credits
Continued development of expressive skills in painting in any media. Emphasis on pictorial and conceptual problems.
Prerequisites: ART F213; COJO F131X or COJO F141X.
Lecture + Lab + Other: 1 + 4 + 0

ART F333  Intermediate Field Painting  (h)
1 Credit
Offered As Demand Warrants
Intermediate course consists of three or four days painting at outdoor locations, usually in the summer. Lectures and directed study are used to broaden student understanding of landscape painting from drawings and/or small painted studies to finished oil and acrylic paintings. Concepts of space, light, color, composition, scale and specific elements of landscape paintings such as water, reflections, skies, aerial and linear perspective will be addressed. Sessions will be in the field with some supporting sessions in the studio. Courses in the past have been held at Denali, McCarthy, Brooks Range, Valdez and Cordova.
Prerequisites: ART F213 or ART F233.
Recommended: ART F105; ART F205.
Lecture + Lab + Other: 0.5 + 1.5 + 0

ART F347  Lighting Design  (O, h)
3 Credits
Offered Fall Even-numbered Years
Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained. Student will spend approximately $40 for materials for this class.
Prerequisites: COJO F131X or COJO F141X.
Recommended: FLPA F241.
Cross-listed with FLPA F347.
Lecture + Lab + Other: 3 + 0 + 0
ART F363  History of Modern Art  (W, h)  
3 Credits  
Offered Spring Odd-numbered Years  
Development of modern art forms and theories in the visual arts from the late 19th century to the present. Concentration on the artistic pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Nonobjective Art, Abstract Expressionism, Pop Art, Realism and many other "isms."

Prerequisites: ART F262X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F364  Italian Renaissance Art  (W, h)  
3 Credits  
Offered Spring Even-numbered Years  
Development of the Renaissance from early Florentine to the High Renaissance of Venice. Study of art by Massacio, Michelangelo, DaVinci, Titian, etc.  

Prerequisites: ART F261X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F365  Native Art of Alaska  (W, h, a)  
3 Credits  
Offered Fall  
Art forms of the Eskimo, Indian and Aleut from prehistory to the present. Changes in forms through the centuries.  

Prerequisites: Advanced standing.  
Cross-listed with ANS F365; ANTH F365.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F366  Northwest Coast Indian Art  (h)  
3 Credits  
Offered As Demand Warrants  
Arts of the Northwest Coast Indians and the place of art in their culture.  
Cross-listed with ANS F366; ANTH F366.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F368  Intermediate Native Art Studio  (h, a)  
3 Credits  
Understanding and applying advanced traditional designs and technologies of Native art.  

Prerequisites: ART F268.  
Cross-listed with ANS F368.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F371  Digital Imaging  (O, h)  
3 Credits  
This course focuses on creating and manipulating digital images, including digital painting and photography. The varied ethical issues engendered by this expertise will be addressed in depth. Skills in knowledge useful for digital photography, digital video compositing and digital painting will be covered.  

Prerequisites: ART F161 or ART F271 or ART F284 or COJO F204 or FLPA F260 or COJO F290; COJO F131X or COJO F141X.  
Cross-listed with COJO F371; FLPA F371.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F401  Advanced Ceramics  (h)  
3 Credits  
Emphasis on developing as aesthetically perceptive and technically proficient ceramic artist. Individual and group projects include kiln firings. May be repeated for credit with permission of instructor.  

Prerequisites: ART F301.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F402  Anthropology of Art  (s)  
3 Credits  
Offered As Demand Warrants  
Anthropological study of art in cross-cultural perspective. Social context of art production and use and cross-cultural variations in definition of an artist's role.  

Prerequisites: Senior standing.  
Cross-listed with ANTH F402.  
Stacked with ANTH F602, ART F602.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F407  Advanced Printmaking  (O, h)  
3 Credits  
Individual development of technical and creative processes. May be repeated for credit with permission of instructor.  

Prerequisites: ART F307; COJO F131X or COJO F141X.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F409  Advanced Metalsmithing and Jewelry  (h)  
3 Credits  
Materials and processes; introduction to holloware skills and forging. May be repeated for credit with permission of instructor.  

Prerequisites: ART F309.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F411  Advanced Sculpture  (h)  
3 Credits  
Principles, practices and concepts of sculpture. May be repeated for credit with permission of instructor.  

Prerequisites: ART F311.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F412  Portrait Photography  
3 Credits  
Offered Fall  
This course will teach the student who has basic or advanced exposure and printing skills to further their understanding of the principles and techniques of portrait photography. Students will work with SLR or DSLR cameras and editing through a digital photo suite such as Adobe Photoshop. Students will learn to perfect their exposures and portrait skills, work with models, and handle studio strobes and equipment using traditional and digital media. Assignments will focus on both technical and aesthetic concerns. In-class critiques will provide feedback on students' work and weekly slide shows will provide insight on historical and contemporary portrait photographers.  

Prerequisites: ART F483 or COJO F402; ART F487 or COJO F407.  
Cross-listed with COJO F412.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F413  Advanced Painting  (O, h)  
3 Credits  
Individual experimentation and technical/conceptual development in painting. Can be repeated for credit with permission of instructor.  

Prerequisites: ART F313; COJO F131X or COJO F141X.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F417  Lithography  (h)  
3 Credits  
Offered Every Third Spring  
An exploration of stone and metal plate lithography. May be repeated for credit with permission of instructor.  

Prerequisites: ART F105; ART F207.  
Lecture + Lab + Other: 1 + 4 + 0
ART F419  Life Drawing  (h)  
3 Credits  
Drawing from life; study of artistic anatomy. May be repeated for credit with permission of instructor.  
Prerequisites: ART F305.  
Lecture + Lab + Other: 1 + 4 + 0

ART F424  Field Artists of the North  (O, h, a)  
3 Credits  
Offered As Demand Warrants  
Study of field artists and their work, from the explorer artists of yesteryear to today's field artists using a variety of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of a field artist.  
Prerequisites: ART F105; a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or COJO F203); COJO F131X or COJO F141X.  
Crosslisted with ACNS F424.  
Stacked with ART F624; ACNS F624.  
Lecture + Lab + Other: 3 + 0 + 0

ART F425  Visual Images of the North  (W, a)  
3 Credits  
Examination of the imagery of the people and landscapes of the polar regions, centering on such issues as depiction of Arctic peoples and customs by Europeans, documentary versus artistic goals, translations from original sketches to published images, relationship of polar imagery to prevailing historical styles and the influence of changing world views on modes of polar representation between the 16th and 20th centuries.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Crosslisted with ACNS F425.  
Stacked with ART F625; ACNS F625.  
Lecture + Lab + Other: 3 + 0 + 0

ART F427  Relief  (h)  
3 Credits  
Offered Every Third Fall  
Woodcut and monotype with emphasis on color. May be repeated for credit with permission of instructor.  
Prerequisites: ART F105; ART F207; ART F213.  
Lecture + Lab + Other: 1 + 4 + 0

ART F433  Advanced Field Painting  (h)  
1 Credit  
Offered As Demand Warrants  
Advanced course consists of three or four days painting at outdoor locations, usually in the summer. Lectures and directed study are used to broaden and develop student understanding of landscape painting from drawings and/or small painted studies to finished oil and acrylic paintings. Concepts of space, light, color, composition, scale and specific elements of landscape paintings such as water, reflections, skies, aerial and linear perspective will be addressed. Emphasis will be on individual experimentation and technical/conceptual development. Sessions will be in the field with some supporting sessions in the studio. Courses in the past have been held at Denali, McCarthy, Brooks Range, Valdez and Cordova.  
Prerequisites: ART F313 or ART F333.  
Lecture + Lab + Other: 0.5 + 1.5 + 0

ART F437  Intaglio  (h)  
3 Credits  
Intaglio printmaking with emphasis on experimentation and color photo intaglio printing. May be repeated for credit with permission of instructor.  
Prerequisites: ART F105; ART F162; ART F207.  
Lecture + Lab + Other: 1 + 4 + 0

ART F447  Silkscreen  (h)  
3 Credits  
Offered As Demand Warrants  
Silkscreen printing with photo process. May be repeated for credit with permission of instructor.  
Prerequisites: ART F105; ART F162; ART F207.  
Lecture + Lab + Other: 1 + 4 + 0

ART F453  Kiln Design and Construction  (h)  
3 Credits  
Offered As Demand Warrants  
Kiln design and construction including building and firing a kiln. May be repeated for credit with permission of instructor.  
Prerequisites: ART F201.  
Lecture + Lab + Other: 1 + 4 + 0

ART F456  Ceramic Materials  
3 Credits  
Offered Fall Even-numbered Years  
A thorough understanding of the materials used to make clay bodies and glazes is an essential tool for the ceramic artist. Through lectures, readings and lab work the student will gain an understanding of how different materials work together and how to safely utilize these materials in their own artistic practice.  
Stacked with ART F656.  
Lecture + Lab + Other: 1 + 4 + 0

ART F458  Elementary Internship  (O)  
3-15 Credits  
Supervised teaching in elementary schools approved by the School of Education. Students should expect to be involved in the school setting for some or all of the school day (depending on the number of credits taken) for the entire university semester. The School of Education may limit enrollment, determine assignments and cancel the registration of students doing unsatisfactory work. Post-baccalaureate students must be admitted to the Art K-12 licensure program. Passing Praxis I scores.  
Prerequisites: COJO F131X or COJO F141X; successful completion of methods practicum and methods course-work with a C or better.  
Crosslisted with ED F452.  
Lecture + Lab + Other: 1 + 0 + 42

ART F459  Secondary Internship  (O)  
3-15 Credits  
Supervised teaching in secondary schools approved by the School of Education. Students should expect to be involved in the school setting for some or all of the school day (depending upon number of credits taken) for the entire university semester. The School of Education may limit enrollment, determine assignments and cancel the registration of students doing unsatisfactory work. Post-baccalaureate students must be admitted to K-12 Art licensure program. Passing Praxis I scores.  
Prerequisites: COJO F131X or COJO F141X; successful completion of methods practicum and methods course work with a C or better.  
Crosslisted with ED F453.  
Lecture + Lab + Other: 1 + 0 + 42
ART F460  Cross-cultural Filmmaking  (h)  
3 Credits  
Offered Fall Odd-numbered Years  
The use of film as a documentary tool for describing and understanding scientific and cultural phenomenon has led to the education of generations. Understanding the implications of our film work with a theoretical base for cultural understanding, scientific need and educational potentials will strengthen the film's integrity and production methods in creating video documents useful as a scientific/cultural record. Pre-production will include research of archival visual media, oral histories and print materials; analysis of educational and scientific funding and distribution options and preliminary interviews, location scouting and film treatment. Production will include time on location with small film crews, media logging and record keeping. Post-production will include basic editing of sequences for distribution.  
Prerequisites: Junior, senior or graduate standing.  
Cross-listed with ANTH F460; FLPA F460.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F463  Seminar in Art History  (h)  
3 Credits  
Offered Fall Odd-numbered Years  
A forum for discussion of a particular historical period or art historical idea. Topics vary each semester and will not be repeated during a two-year period. Topics include art since 1945, women in twentieth-century art, the American landscape tradition, etc.  
Stacked with ART F663.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F464  History of Photography  (h)  
3 Credits  
Offered Spring Even-numbered Years  
This course will provide an exploration of the history, impact and development of the photographic process, spanning from the earliest observations of optics, through the development of the first permanent image, and all the way to the most recent advances in digital technology.  
Prerequisites: WRTG F111X.  
Cross-listed with COJO F464.  
Stacked with ART F664.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F465  Advanced Photography Seminar  
3 Credits  
Offered Spring  
Advanced discussion photographic topics. Topics range from the photographic essay to the history of photography and working in series. Weekly classroom meetings supplemented by field, studio and darkroom sessions.  
Prerequisites: COJO F402 or ART F483; COJO F404.  
Cross-listed with COJO F405.  
Stacked with COJO F605 and ART F665.  
Lecture + Lab + Other: 2 + 3 + 0  

ART F467  Photoprocess Printmaking  (h)  
3 Credits  
Offered Every Third Spring  
Production of etchings, lithographs and silkscreen prints using photographic processes. Elements of electrophotography and desktop publishing explored. May be repeated for credit with permission of instructor.  
Prerequisites: ART F105; ART F207; ART F262X.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F468  Advanced Native Art Studio  (h, a)  
3 Credits  
Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms.  
Prerequisites: ART F368.  
Cross-listed with ANS F468.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F469  Architecture: Art, Design, Technology and Social Impact  (W, h)  
3 Credits  
Offered Fall Even-numbered Years  
Concepts of environmental, urban and industrial design. Relationship of human and natural environment is stressed in this history of architecture with special attention given to contemporary conditions in urban areas and effects of industrialization and mechanization on human living spaces, artistic design and aesthetics.  
Prerequisites: ART F261X and ART F262X; or HUM F201X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F471  Advanced Digital Design  (O, h)  
3 Credits  
Offered Spring  
Project-oriented class in graphic design with applications from journalism to fine and commercial art. Students will be expected to have a background in programs likely to include web design, digital photography and graphic design. May be repeated for credit with permission of instructor.  
Prerequisites: COJO F131X or COJO F141X; ART F371 or COJO F371; one college level studio art course.  
Cross-listed with COJO F471.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F472  3D Animation  (O, h)  
3 Credits  
Offered Fall  
Concept and technique of 3D computer generated animation with applications in fine and commercial art and science. Students will produce a series of three dimensional animation projects which will introduce them to the tools and concepts used by animation and visualization professionals. Note: May be repeated for credit.  
Prerequisites: ART F231 or FLPA F231; COJO F131X or COJO F141X.  
Cross-listed with FLPA F472; COJO F472.  
Lecture + Lab + Other: 1 + 4 + 0  

ART F474  History of the Role of the Artist  (W, h)  
3 Credits  
Offered Spring Even-numbered Years  
Survey of theory and practices of professional training and education of the artist in relationship to political, social and philosophical conditions.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
 Recommended: ART F261X; ART F262X.  
Stacked with ART F673.  
Lecture + Lab + Other: 3 + 0 + 0
ART F475 Digital Video Compositing (h) 3 Credits
Offered As Demand Warrants
Digital compositing techniques for creating moving imagery. The course covers video manipulation, layering images, synthesizing realistic video imagery, integration of live action and computer generated animation. Course can be repeated for a total of nine credits with permission of instructor.
Prerequisites: ART F472 or COJO F203 or FLPA F472.
Cross-listed with FLPA F475.
Lecture + Lab + Other: 1 + 4 + 0

ART F483 Advanced Photography (h) 3 Credits
Offered Spring
Continuation of COJO F203/ART F283. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography.
Prerequisites: COJO F203 or ART F283.
Cross-listed with COJO F402.
Lecture + Lab + Other: 2 + 3 + 0

ART F484 Multimedia Theory and Practice (h) 3 Credits
Offered Spring
Study of techniques needed to produce multimedia with a special project for a university or community agency as the required final project. For the purpose of this course multimedia is defined as computer-based, user-driven products with audio, visual and text components and also video or film where appropriate. Primary program is Flash. plus some mastery of a specialty in writing, art, or television production.
Prerequisites: Understanding of computer graphics programs like Illustrator, Freehand, etc.
Cross-listed with COJO F484.
Stacked with ART F684 and COJO F684.
Lecture + Lab + Other: 3 + 3 + 0

ART F487 Digital Darkroom 3 Credits
Offered Fall
Learn to make ink jet prints from various photographic sources, including digital capture and scanned film. Emphasis on applying Photoshop methods for making fine prints in black and white and color.
Prerequisite: COJO F204 or ART F284.
Cross-listed with COJO F407.
Lecture + Lab + Other: 2.5 + 2 + 0

ART F488 Professional Practices 3 Credits
Offered Spring
This course provides a foundation of practical information for students as they begin to consider various career options in the visual arts. Topics include writing about students' artwork, methods for installing art exhibits, self-promotion, developing application materials for residencies and grants, as well as issues of health and safety. This face-to-face class is augmented with additional methods of instruction such as online video tutorials, behind the scenes visits to the UA Museum of the North, community galleries and guest presentations by professional artists.
Prerequisites: Junior standing.
Stacked with ART F688.
Lecture + Lab + Other: 3 + 0 + 0

ART F489 Bachelor of Arts Capstone (h) 0 Credit
This capstone course is the culmination of a student's general studies in the visual arts. This course will give students hands-on experience in preparing an art exhibition, resume, artist's statement and portfolio.
Prerequisites: Admittance to the art program, senior standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F490 Current Problems 3 Credits
Offered Fall Even-numbered Years
A forum for discussion of aesthetic and professional problems confronted by artists. Topics are agreed upon by instructor and students, and students research and lead discussion on these topics. Topics may include: approaches to figuration of contemporary painting and sculpture, health hazards for the professional artist, portfolio development and access to galleries, making art far from major cultural centers, etc.
Stacked with ART F690.
Lecture + Lab + Other: 3 + 0 + 0

ART F492 SEM: 1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

ART F498 Undergraduate Research 1-3 Credits
Lecture + Lab + Other: 1-3 + 0 + 0

ART F499 Thesis Project 1-3 Credits
Directed work toward individual exhibition; completed outside regularly scheduled classes. Required for B.F.A. candidates.
Prerequisites: Senior standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F601 Ceramics 1-6 Credits
Offered As Demand Warrants
Exploration of selected topics in ceramics with lectures, demonstrations, independent research and production of ceramics at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F602 Anthropology of Art 3 Credits
Offered As Demand Warrants
Anthropological study of art in cross-cultural perspective. Social context of art production and use and cross-cultural variations in definition of an artist's role.
Prerequisites: Senior standing.
Cross-listed with ANTH F602.
Stacked with ART F402, ANTH F402 .
Lecture + Lab + Other: 3 + 0 + 0

ART F603 Graduate Photography 2-6 Credits
Offered As Demand Warrants
Exploration of selected topics in photography, with lectures, demonstrations, independent research and production of photography at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 1 + 2.8 + 0
ART F605  Drawing
1-6 Credits
Offered As Demand Warrants
Exploration of topic in general drawing with lectures, demonstrations and independent research and production of drawing at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: ART F305; and graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F607  Printmaking
1-6 Credits
Offered As Demand Warrants
Exploration of selected topics in printmaking with lectures, demonstrations, independent research and production of printmaking at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F609  Metalsmithing
1-6 Credits
Offered As Demand Warrants
Exploration of selected topics in metalcraft with lectures, demonstrations, independent research and production of metalcraft at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F611  Sculpture
1-6 Credits
Offered As Demand Warrants
Exploration of selected topics in sculpture with lectures, demonstrations, independent research and production of sculpture at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F613  Painting
1-6 Credits
Offered As Demand Warrants
Exploration of selected topics in painting with lectures, demonstrations, independent research and production of painting at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F619  Life Drawing
1-6 Credits
Exploration of selected topics in drawing with lectures, demonstrations, independent research and production of drawing at a level commensurate with graduate standing. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F624  Field Artists of the North  (a)
3 Credits
Offered As Demand Warrants
Study of field artists and their work, from the explorer artists of yesteryear to today's field artists using a variety of traditional and contemporary media in their creations. Students will conceive and conduct their own study projects, producing a body of work that will demonstrate the principles and practice of a field artist.
Prerequisites: ART F105 and a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or COJO F203.
Cross-listed with ACNS F624.
Stacked with ART F424.
Lecture + Lab + Other: 3 + 0 + 0

ART F625  Visual Images of the North  (a)
3 Credits
Examination of the imagery of the people and landscapes of the polar regions, centering on such issues as depiction of Arctic peoples and customs by Europeans, documentary versus artistic goals, translations from original sketches to published images, relationship of polar imagery to prevailing historical styles and the influence of changing world views on modes of polar representation between the 16th and 20th centuries.
Cross-listed with ACNS F625.
Stacked with ACNS F425; ART F425.
Lecture + Lab + Other: 3 + 0 + 0

ART F633  Graduate Field Painting  (h, a)
1 Credit
Consists of three or four days painting at outdoor locations, usually in the summer. Lectures and directed study are used to further develop understanding of landscape painting from drawings and/or small painted studies to finished oil and acrylic paintings. Concepts of space, light, color, composition, scale and specific elements of landscape paintings such as water, reflections, skies, aerial and linear perspective will be addressed. Emphasis will be on individual experimentation and technical/conceptual development consistent with graduate level art courses. Sessions will be in the field with some supporting sessions in the studio. Courses have been held at Denali, McCarthy, Brooks Range, Valdez and Cordova
Prerequisites: ART F413; ART F433.
Lecture + Lab + Other: 6 + 21 + 0

ART F648  Native Arts  (a)
1-6 Credits
Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms. May be repeated for credit with permission of instructor.
Prerequisites: ART F468; graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F656  Ceramic Materials
3 Credits
Offered Fall Even-numbered Years
A thorough understanding of the materials used to make clay bodies and glazes is an essential tool for the ceramic artist. Through lectures, readings and lab work the student will gain an understanding of how different materials work together and how to safely utilize these materials in their own artistic practice.
Stacked with ART F456.
Lecture + Lab + Other: 1 + 4 + 0
ART F661  Mentored Teaching in Art
1 Credit
Offered As Demand Warrants
Mentored teaching provides consistent contact of course-related issues
between teaching assistants and mentoring faculty. Graduates are
required to be enrolled in a mentored teaching section while teaching.
Note: May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 1 + 0 + 0

ART F663  Seminar in Art History
3 Credits
Offered Fall Odd-numbered Years
A forum for discussion of a particular historical period or art historical
idea. Topics vary each semester and will not be repeated during a two-
year period. Topics include art since 1945, women in twentieth-century
art, the American landscape tradition, etc.
Prerequisites: Graduate standing.
Stacked with ART F463.
Lecture + Lab + Other: 3 + 0 + 0

ART F664  History of Photography (h)
3 Credits
Offered Spring Even-numbered Years
This course will provide an exploration of the history, impact and
development of the photographic process, spanning from the earliest
observations of optics, through the development of the first permanent
image, and all the way to the most recent advances in digital technology.
Prerequisites: Graduate standing.
Stacked with ART F464 and COJO F464.
Lecture + Lab + Other: 3 + 0 + 0

ART F665  Advanced Photography Seminar
3 Credits
Offered Spring Odd-numbered Years
Advanced discussion of photojournalism and photographic topics
with field, studio, and darkroom sessions. Topics will range from the
photographic essay to the history of photography and working in series.
Weekly classroom meeting will be supplemented by field, studio, and
darkroom sessions.
Prerequisites: COJO F402; COJO F404.
Cross-listed with COJO F605.
Stacked with COJO F405 and ART F465.
Lecture + Lab + Other: 2 + 3 + 0

ART F671  Two- and Three-dimensional Computer Design
1-6 Credits
Visualization and animation with applications to two- and three-
dimensional computer design and typography. Emphasis on visual
design for electronic and print publication. Includes animation of the
components of 3-D models. May be repeated for credit.
Prerequisites: ART F471; graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F672  Advanced Computer Visualization in Art
1-6 Credits
Offered As Demand Warrants
Computer visualization in art with production and reproduction
of projects chosen from a wide range of topics. Includes lectures,
demonstrations and laboratory experience. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 0 + 0 + 0

ART F673  History of the Role of the Artist
3 Credits
Offered Spring Even-numbered Years
Survey of theory and practices of professional training and education of
the artist in relationship to political, social and philosophical conditions.
Prerequisites: Graduate standing.
Stacked with ART F474.
Lecture + Lab + Other: 3 + 0 + 0

ART F684  Multimedia Theory and Practice
3 Credits
Offered Spring
Study of techniques needed to produce multimedia with a special project
for some university or community agency as the required final project.
For the purpose of this course multimedia is defined as computer based,
user-driven products with audio, visual and text components, and also
video or film where appropriate. Primary program is Flash, plus some
mastery of a specialty in writing, art, or television production.
Prerequisites: Understanding of computer graphics programs like
Illustrator, Freehand, etc.
Cross-listed with COJO F684.
Stacked with ART F484 and COJO F484.
Lecture + Lab + Other: 3 + 0 + 0

ART F688  Professional Practices
3 Credits
Offered Spring
This course provides a foundation of practical information for students
as they begin to consider various career options in the visual arts.
Topics include writing about students’ artwork, methods for installing art
exhibits, self-promotion, developing application materials for residencies
and grants, as well as issues of health and safety. This face-to-face class
is augmented with additional methods of instruction such as online
video tutorials, behind the scenes visits to the UA Museum of the North,
community galleries and guest presentations by professional artists.
Prerequisites: Second or third year MFA students.
Stacked with ART F488.
Lecture + Lab + Other: 3 + 0 + 0

ART F690  Current Problems
3 Credits
Offered Fall Even-numbered Years
A forum for discussion of aesthetic and professional problems
confronted by artists. Topics are agreed upon by instructor and students,
and students research and lead discussion on these topics. Topics may
include: approaches to figuration of contemporary painting and sculpture,
health hazards for the professional artist, portfolio development and
access to galleries, making art far from major cultural centers, etc.
Prerequisites: Graduate standing.
Stacked with ART F490.
Lecture + Lab + Other: 3 + 0 + 0

ART F692  MFA Seminar
3 Credits
Lecture + Lab + Other: 1 + 4 + 0

ART F698  M.F.A. Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

ART F699  M.F.A. Thesis Project
1-9 Credits
Lecture + Lab + Other: 1 + 4 + 0
Atmospheric Sciences (ATM)

ATM F101X Weather and Climate of Alaska (n, a)
4 Credits
Offered Spring
Focus on the atmosphere as an important part of our environment. Study of weather and climate that covers weather observation, composition and properties of the atmosphere, weather and circulation systems, forecasting weather based on fundamental laws of physics and chemistry. Students are required to make weather observations in Alaska. The students will use their local observations as a foundation and a vantage point to understand the regional and global behavior of the atmosphere (i.e., "Observe locally and connect globally").
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

ATM F401 Introduction to Atmospheric Sciences
3 Credits
Offered Fall
Fundamentals of atmospheric science. Includes energy and mass conservation, internal energy and entropy, atmospheric water vapor, cloud microphysics, equations of motion, hydrostatics, phase oxidation, heterogeneous chemistry, the ozone layer, fundamentals of biogeochemical cycles, solar and terrestrial radiation and radiative-convective equilibrium. Also includes molecular, cloud and aerosol absorption and scattering.
Prerequisites: CHEM F105X; CHEM F106X; MATH F302; PHYS F212X.
Stacked with ATM F601; CHEM F601.
Lecture + Lab + Other: 3 + 0 + 0

ATM F413 Atmospheric Radiation
3 Credits
Offered Fall Odd-numbered Years
Fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds and radiation climatology.
Prerequisites: ATM F401 (may be taken concurrently).
Cross-listed with PHYS F413.
Stacked with ATM F613, PHYS F613.
Lecture + Lab + Other: 3 + 0 + 0

ATM F415 Cloud Physics
3 Credits
Offered Spring Even-numbered Years
Basic properties of condensed water vapor in the atmosphere. Formation and behavior of clouds including the nature of atmospheric aerosols, nucleation and growth of water droplets and ice crystals, the development of precipitation, nature of mixed-phase (water and ice) clouds, how transfer of radiation depends on the character of clouds, and how humans are modifying clouds and precipitation both intentionally and unintentionally. Field trips will collect data at the Arctic Facility for Atmospheric Remote Sensing (AFARS). Microscopic examination and have available for use of a sophisticated cloud model.
Prerequisites: ATM F401 (may be taken concurrently).
Stacked with ATM F615.
Lecture + Lab + Other: 3 + 0 + 0

ATM F444 Weather Analysis and Forecasting
3 Credits
Offered Spring Even-numbered Years
Weather systems and the techniques used to understand and predict their behavior. Topics include atmospheric observations, synoptic analysis techniques, satellite image interpretation, kinematics, fronts and frontogenesis, life cycles of extratropical cyclones, mesoscale phenomena, numerical weather prediction and interpretation of forecast products.
Prerequisites: ATM F401; ATM F445.
Stacked with ATM F644.
Lecture + Lab + Other: 3 + 0 + 0

ATM F445 Atmospheric Dynamics
3 Credits
Offered Fall Even-numbered Years
Examination of the fundamental forces and basic conservation laws that govern the motion of the atmosphere. Topics include momentum, continuity equations, circulation, vorticity, thermodynamics, the planetary boundary layer and synoptic scale motions in mid-latitudes.
Prerequisites: ATM F401 (may be taken concurrently).
Stacked with ATM F645.
Lecture + Lab + Other: 3 + 0 + 0

ATM F456 Climate and Climate Change (a)
3 Credits
Offered Fall Odd-numbered Years
The climate of planet Earth and its changes with time. Radiative fluxes, greenhouse effects, energy budget, hydrological cycle, the atmospheric composition and climatic zones. Physical and chemical reasons for climatic change.
Prerequisites: Any 400 level Physics or Chemistry course or ATM F401; basic computer skills.
Stacked with ATM F656.
Lecture + Lab + Other: 3 + 0 + 0

ATM F488 Undergraduate Research
1-3 Credits
Advanced research topics from outside the usual undergraduate requirements.
Recommended: A substantial level of technical/scientific background.
Lecture + Lab + Other: 0 + 0 + 0

ATM F601 Introduction to Atmospheric Sciences
3 Credits
Offered Fall
Fundamentals of atmospheric science. Includes energy and mass conservation, internal energy and entropy, atmospheric water vapor, cloud microphysics, equations of motion, hydrostatics, phase oxidation, heterogeneous chemistry, the ozone layer, fundamentals of biogeochemical cycles, solar and terrestrial radiation and radiative-convective equilibrium. Also includes molecular, cloud and aerosol absorption and scattering.
Prerequisites: Graduate standing.
Cross-listed with CHEM F601.
Stacked with ATM F401.
Lecture + Lab + Other: 3 + 0 + 0
ATM F606  Atmospheric Chemistry  
3 Credits  
Offered Fall Even-numbered Years  
Chemistry of the lower atmosphere (troposphere and stratosphere) including photochemistry, kinetics, thermodynamics, box modeling, biogeochemical cycles and measurement techniques for atmospheric pollutants; study of important impacts to the atmosphere which result from anthropogenic emissions of pollutants, including acid rain, the “greenhouse” effect, urban smog and stratospheric ozone depletion.  
Prerequisites: ATM F601.  
Cross-listed with CHEM F606.  
Stacked with CHEM F406.  
Lecture + Lab + Other: 3 + 0 + 0 

ATM F610  Analysis Methods in Meteorology and Climate  
3 Credits  
Offered Spring Odd-numbered Years  
Introduction to standard analysis topics in Atmospheric Sciences, including basic aggregate stats, time series work, eigenmode analysis, mixed models, and extreme value analysis. Focus on manipulation of very large data sets, especially weather/climate model output. Hands-on instruction in supporting computer topics. Student presentations will be emphasized.  
Prerequisites: ATM F601; graduate standing.  
Recommended: Basic computer and mathematical knowledge to analyze and plot data.  
Lecture + Lab + Other: 3 + 0 + 0 

ATM F613  Atmospheric Radiation  
3 Credits  
Offered Fall Odd-numbered Years  
Fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds, and radiation climatology.  
Prerequisites: ATM F601 (may be taken concurrently); graduate standing.  
Cross-listed with PHYS F613.  
Stacked with ATM F413, PHYS F413.  
Lecture + Lab + Other: 3 + 0 + 0 

ATM F615  Cloud Physics  
3 Credits  
Offered Spring Even-numbered Years  
Basic properties of condensed water vapor in the atmosphere. Formation and behavior of clouds including the nature of atmospheric aerosols, nucleation and growth of water droplets and ice crystals, the development of precipitation, nature of mixed-phase (water and ice) clouds, how transfer of radiation depends on the character of clouds, and how humans are modifying clouds and precipitation both intentionally and unintentionally. Field trips will collect data at the Arctic Facility for Atmospheric Remote Sensing (AFARS). Microscopic examination and have available for use of a sophisticated cloud model.  
Prerequisites: ATM F601; graduate standing.  
Stacked with ATM F415.  
Lecture + Lab + Other: 3 + 0 + 0 

ATM F620  Climate Journal Club Seminar  
1 Credit  
Offered Spring  
The “Climate Group” is in informal meeting for researchers and graduate students. The seminars alternate between progress reports on ongoing research and journal club contributions. The main interests articles, formal and informal presentation by locals and visitors will be on the agenda. Participating students will be exposed to a free format discussion of modern ideas in climate related disciplines. All students are encouraged to contribute and students taking the course for credit are required to lead the discussion for one session. This may include the presentation of a research plan/results, or a discussion of a journal article. Students will be graded on at least one presentation and participation in the class.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 1 + 0 + 0 

ATM F621  Introduction to Computational Meteorology  
1 Credit  
Offered Fall  
Introduce the basic knowledge on how to apply software related to atmospheric sciences problems. This includes knowledge of UNIX/ LINUX, FORTRAN90, IDL, NCL, MATLAB and how to read NetCDF files, grib-files, etc., which are special data formats in which climate data are available. Students will learn how to run given software products on UNIX/LINUX and other platforms and basic tools to modify these programs for their purposes.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 1 + 0 + 0 

ATM F631  Environmental Fate and Transport  
3 Credits  
Offered Spring Even-numbered Years  
Examination of the physical properties that govern the behavior, fate and transport of contaminants released into the environment. Topics include air-water partitioning and exchange, organic solvent-water partitioning, diffusion, sorption, chemical and biological transformation reactions, and modeling concepts.  
Cross-listed with CHEM F631.  
Lecture + Lab + Other: 3 + 0 + 0 

ATM F644  Weather Analysis and Forecasting  
3 Credits  
Offered Spring Even-numbered Years  
Weather systems and the techniques used to understand and predict their behavior. Topics include atmospheric observations, synoptic analysis techniques, satellite image interpretation, kinematics, fronts and frontogenesis, life cycles of extratropical cyclones, mesoscale phenomena, numerical weather prediction and interpretation of forecast products.  
Prerequisites: ATM F601; ATM F645.  
Stacked with ATM F444.  
Lecture + Lab + Other: 3 + 0 + 0 

ATM F645  Atmospheric Dynamics  
3 Credits  
Offered Fall Even-numbered Years  
Examination of the fundamental forces and basic conservation laws that govern the motion of the atmosphere. Topics include momentum, continuity equations, circulation, vorticity, thermodynamics, the planetary boundary layer and synoptic scale motions in mid-latitudes.  
Prerequisites: ATM F601 (may be taken concurrently); graduate standing.  
Stacked with ATM F445.  
Lecture + Lab + Other: 3 + 0 + 0
ATM F647  Fundamentals of Geophysical Fluid Dynamics
3 Credits
Offered Fall Odd-numbered Years
Introduction to the mechanics of fluid systems, the fundamental processes, Navier-Stokes’ equations in rotating and stratified fluids, kinematics, conservation laws, vortex motion, irrotational flow, laminar flow, boundary layer phenomena, waves, instabilities, turbulent flows and mixing.
Prerequisites: Graduate standing.
Cross-listed with PHYS F647.
Lecture + Lab + Other: 3 + 0 + 0

ATM F656  Climate and Climate Change (a)
3 Credits
Offered Fall Odd-numbered Years
The climate of planet Earth and its changes with time. Radiative fluxes, greenhouse effects, energy budget, hydrological cycle, the atmospheric composition and climatic zones. Physical and chemical reasons for climatic change.
Prerequisites: Graduate standing; calculus, physics or related courses at F400-level, basic computer skills.
Recommended: ATM F601 or ATM F401; basic computer knowledge to plot and analyze climate data.
Stacked with ATM F456.
Lecture + Lab + Other: 3 + 0 + 0

ATM F658  Air-sea Interactions
3 Credits
Offered Spring Even-numbered Years
Course covers the basics processes governing air-sea interactions at different temporal and spatial scales including; transfer of heat and momentum through air-sea surface, interactions of atmospheric and oceanic mixed layers, important examples of air-sea interactions; i.e. El Niño and interactions between high-latitude atmosphere and ocean.
Prerequisites: ATM F601; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ATM F662  Numerical Modeling and Parameterization Methods
3 Credits
Offered Spring Even-numbered Years
Construction of models from fundamental equations and the necessity of parameterizations. Simplification and discretization of equations, numerical methods, model-grids, analytical modeling, boundary and initial conditions, parameterizations and evaluation of model results. Scale-dependency, limitations of parameterizations and coupled modeling are elucidated. Students apply and code aspects of models themselves.
Prerequisites: Graduate standing; calculus, physics or related F400-level basic computer skills.
Recommended: ATM F601; basic knowledge in Fortran and UNIX/LINUX.
Lecture + Lab + Other: 3 + 0 + 0

ATM F666  Atmospheric Remote Sensing
3 Credits
Offered Spring Odd-numbered years
Modern atmospheric research is becoming increasingly reliant on measurements made from afar using instruments sensing various portions of the electromagnetic spectrum. Using principally microwave radars and visible-wavelength laser lidars, often combined with passive measurements from radiometers, many properties of the atmosphere can be routinely profiled by remote sensors located at the ground, from aircraft, or satellite. This course will concentrate on the fundamentals of these families of active remote sensors including their designs and operating principles, applicable backscattering and extinction theories, and derive their basic radar equation.
Prerequisites: ATM F401 or ATM F601; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ATM F673  Introduction to Micrometeorology
3 Credits
A comprehensive explanation of micrometeorology, its basic theories of physics, mechanisms, measurement procedures, methods and how micrometeorological processes interact with the meso- and large-scale atmospheric motion. This class will deal with weather conditions on a small scale, both in terms of space and time. For example, weather conditions lasting less than a day in the area immediately surrounding a smokestack, a building, air flow in street channels, or a small air shed.
Prerequisites: ATM F601; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ATM F678  Mesoscale Dynamics
3 Credits
Offered As Demand Warrants
A comprehensive explanation of mesoscale air motions – their phenology, basic physics and mechanisms, why they build and how mesoscale motions interact with the micro and large scale. Classical and non-classical mesoscale circulations, super cell, single and multiple cell thunderstorm dynamics and tornado formation.
Prerequisites: ATM F401 or ATM F601.
Recommended: 400-level physics, calculus I to III.
Lecture + Lab + Other: 3 + 0 + 0

ATM F688  Atmospheric Science Informal Seminar
1 Credit
Review of ongoing research in atmospheric science to learn about research results, ideas and direction long before they are published in journals. Presentations cover the broad range of atmospheric sciences and links to other disciplines as required to answer questions on global variability, climate change and assessment studies.
Prerequisites: Graduate standing in physical sciences.
Lecture + Lab + Other: 1 + 0 + 0

ATM F692  Seminar
1-3 Credits
Lecture + Lab + Other: 0 + 0 + 0

ATM F699  Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 1-12

PHYS F647.

Graduate standing in physical sciences.

400-level physics, calculus I to III.

Graduate standing.

Graduate standing.

Graduate standing.

Graduate standing.
Automotive Technology (AUTO)

AUTO F080  Driver and Safety Education
2 Credits
Offered As Demand Warrants
Driver education for the beginning driver. Alaska Driver’s Manual, material necessary to gain an Alaska Driver’s Permit. Defensive driving methods for accident-free driving and basic mechanical information.
Lecture + Lab + Other: 2 + 0 + 0

AUTO F081  Behind-the-Wheel Training
1 Credit
Offered As Demand Warrants
Practical driver training in actual situations. Expected student outcome is obtaining a State of Alaska driver’s license. Prerequisites: Must have a valid Alaska Driver’s Permit.
Lecture + Lab + Other: 0 + 3 + 0

AUTO F100  Introduction to Small Engine Repair
1 Credit
Offered As Demand Warrants
Parts and functions of a small engine and its electrical system. Dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs.
Lecture + Lab + Other: 1 + 0 + 0

AUTO F102  Introduction to Automotive Technology
3 Credits
Offered As Demand Warrants
Provides career information in the automotive industry. Shop safety, hand tools, fasteners, fittings, and an introduction to the major automotive systems.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F106  Auto/Diesel Engine Cooling and Climate Control Systems
4 Credits
Offered As Demand Warrants
Theory, diagnostics and repair of motor vehicle A/C, heating, engine cooling and automatic temperature control systems. Covers R-12 and R-143 refrigerant recovery, and related EPA regulations.
Recommended: AUTO F110.
Lecture + Lab + Other: 3 + 3 + 0

AUTO F110  Basic Electrical Systems
3 Credits
Offered As Demand Warrants
The history and origins of electrical theory, the generation of electricity and diagnosis, minor repair and general servicing of alternators, starters and batteries.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F112  Basic Auto Maintenance
1 Credit
Offered As Demand Warrants
Teaches fundamental skills for maintenance and repair of an All-Terrain Vehicle (ATV). Only one type of ATV will be the focus of the class, examples being: 4-wheelers, dirt bikes, hovercrafts. Engine tune-up, lubrication, clutch and belt, if applicable, transmission troubleshooting, tire and wheel repair, alignment and other basic problems encountered during operation along with safe shop procedures.
Lecture + Lab + Other: 1 + 0 + 0

AUTO F113  Gasoline Fuel Delivery Systems
4 Credits
Offered As Demand Warrants
Basics of carburation and electronic fuel injection. Emphasis on theory, diagnostic/repair skills, inputs and outputs of the PCM, engine performance, use of on-board diagnostic data (OBD II) and special test equipment.
Recommended: AUTO F110.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F122  Engine Theory and Diagnosis
3 Credits
Offered As Demand Warrants
Introduction to fundamental aspects of engine design, general diagnosis and engine related service, to include combustion process, engine noise, basics of exhaust emissions, vacuum/pressure, compression, intake and exhaust systems, valve and ignition timing.
Prerequisites: AUTO F102.
Recommended: AUTO F110.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F131  Automotive Electrical II
3 Credits
Offered As Demand Warrants
Theory, diagnosis and repair of automotive electrical/electronic systems to include testing tools, schematics and on-board computers.
Prerequisites: AUTO F110.
Recommended: AUTO F102.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F150  Brake Systems
4 Credits
Offered As Demand Warrants
Theory, diagnosis and servicing of light- and heavy-duty vehicle hydraulic break and traction control systems. Includes discussion and tasks on disc brakes, drum brakes, power assist systems and anti-lock/traction controls.
Prerequisite: AUTO F110.
Lecture + Lab + Other: 3 + 3 + 0

AUTO F162  Suspension Alignment
4 Credits
Offered As Demand Warrants
Theory, diagnosis and repair of suspension, steering and wheel alignment of automobiles and trucks.
Lecture + Lab + Other: 3 + 3 + 0

AUTO F170  Snowmachine Maintenance and Repair
1 Credit
Offered As Demand Warrants
Fundamental skills for operation and repair. Engine tune-up, lubrication, belt and track repair, alignment and basic problems encountered during operation.
Lecture + Lab + Other: 1 + 0 + 0

AUTO F172  All-Terrain Vehicle Maintenance and Repair
1 Credit
Offered As Demand Warrants
Teaches fundamental skills for maintenance and repair of an All-Terrain Vehicle (ATV). Only one type of ATV will be the focus of the class, examples being: 4-wheelers, dirt bikes, hovercrafts. Engine tune-up, lubrication, clutch and belt, if applicable, transmission troubleshooting, tire and wheel repair, alignment and other basic problems encountered during operation along with safe shop procedures.
Lecture + Lab + Other: 1 + 0 + 0
AUTO F190  Automotive Practicum I
1-6 Credits
Offered As Demand Warrants
Provides supervised workplace experience in selected industry settings. Integrates knowledge and practice to achieve competencies in basic skills. A maximum of 6 credits may be earned.
Prerequisites: Advisor approval required.
Lecture + Lab + Other: 0 + 0 + 1-6

AUTO F202  Auto Fuel and Emissions Systems
4 Credits
Offered As Demand Warrants
Builds on the skills and knowledge gained in AUTO F122. Combustion chemistry, volumetric efficiency, design and function of emission control devices, laws and regulations concerning vehicle emissions are covered, with an emphasis on interfacing with on-board computers, automotive computer networking, and four and five gas analysis.
Prerequisites: AUTO F102; AUTO F122.
Lecture + Lab + Other: 3 + 2 + 0

AUTO F209  Automatic Transmissions and Transaxles
5 Credits
Offered As Demand Warrants
Automatic transmissions and transaxles. Includes the operation, diagnosis and repair of planetary gears, clutches, pumps, hydraulic controls and electronic shifting controls. Study and hands-on tasks.
Recommended: AUTO F110 strongly recommended.
Lecture + Lab + Other: 4 + 3 + 0

AUTO F215  Engine Analyzer, Scopes and Scan Tools
4 Credits
Offered As Demand Warrants
Use and interpretation of diagnostic analyzers for spark ignition engines, digital data, fault code and input/output information retrieval, scan tool usage and other diagnostic tools used in the vehicle repair industry.
Recommended: AUTO F110.
Lecture + Lab + Other: 3 + 3 + 0

AUTO F219  The Auto/Diesel Repair Business
2 Credits
Offered as Demand Warrants
Overview of practices common in the vehicle repair industry. Includes flat rate, repair order write-up, customer relations, repair industry related OSHA and EPA regulations, and financing and acquiring a repair business.
Lecture + Lab + Other: 2 + 0 + 0

AUTO F222  Automotive Engine Performance
3 Credits
Offered as Demand Warrants
Builds on skills and knowledge gained in AUTO F122 and AUTO F202. Applies strategies for diagnosing fuel and ignition systems, automotive computers and multiplexing. Includes communication strategies, on-board diagnostics, testing and diagnosis of engine performance-related components.
Prerequisites: AUTO F122; AUTO F202.
Lecture + Lab + Other: 2 + 2 + 0

AUTO F227  Automotive Electrical III
3 Credits
Offered As Demand Warrants
The theory, diagnosis and repair of automotive electrical and electronic systems to include accessories.
Prerequisites: AUTO F131.
Lecture + Lab + Other: 2 + 2 + 0

Aviation Technology (AVTY)

AVTY F100  Private Pilot Ground School
4 Credits
Offered As Demand Warrants
Study of aircraft and engine operation and limitations, aircraft flight instruments, navigation, navigation computers, national weather information and dissemination services. Federal aviation regulations, flight information publications, radio communications and navigation. Preparation for FAA private pilot-airplane written exam.
Lecture + Lab + Other: 4 + 0 + 0

AVTY F101  Private Pilot Flight Training
2 Credits
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of private pilot certificate.
Prerequisites: Department approval required.
Lecture + Lab + Other: 2 + 0 + 0

AVTY F102  Commercial Ground Instruction
3 Credits
Offered As Demand Warrants
Advanced study of aircraft performance, airplane systems (including complex single engine, multi-engine and turboprop aircraft), navigation, regulations and meteorology. Employment considerations for commercial pilots surveyed. Preparation for the FAA commercial pilot-airplane written exam.
Lecture + Lab + Other: 3 + 0 + 0

AVTY F103  Commercial Flight Training
2 Credits
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of commercial pilot certificate.
Prerequisites: Private Pilot certificate, AVTY F102 or concurrent enrollment, or passing score on FAA Commercial Pilot written exam, department approval required.
Lecture + Lab + Other: 2 + 0 + 0

AVTY F105  Seaplane Flight Training
1 Credit
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of single-engine sea rating.
Prerequisites: Private pilot certificate or higher, department approval required.
Lecture + Lab + Other: 1 + 0 + 0

AVTY F107  Multi-Engine Flight Training
1 Credit
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of multi-engine rating.
Prerequisites: Private pilot certificate or higher, department approval required.
Lecture + Lab + Other: 1 + 0 + 0
AVTY F108  Introduction to Skis
1 Credit
Offered As Demand Warrants
Pilot instruction with a certified flight instructor or flight school in techniques of ski-plane operation and cold weather maintenance. The student is responsible for making arrangements for an appropriate aircraft, instructor and financing.
Prerequisites: Private pilot certificate.
Lecture + Lab + Other: 1 + 0 + 0

AVTY F109  Glider Flight Training
1 Credit
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of glider and private or commercial pilot certificate with a glider category rating.
Prerequisites: Department approval.
Lecture + Lab + Other: 1 + 0 + 0

AVTY F111  Fundamentals of Aviation
3 Credits
Basic concepts associated with the aircraft and its environment. Aircraft and its components, including basic systems, Federal Aviation Administration regulations, airports and airspace utilization, aeronautical charts, navigation, weather theory, medical and emergency factors.
Lecture + Lab + Other: 3 + 0 + 0

AVTY F116  Aviation History
3 Credits
Offered As Demand Warrants
Aviation from its early days to the present. People, places and machines contributing to the development of Alaskan aviation.
Lecture + Lab + Other: 3 + 0 + 0

AVTY F121  Introduction to Aviation Safety
2 Credits
Offered As Demand Warrants
An introduction to aviation safety designed to develop a positive attitude toward safety, refresh aeronautical knowledge and improve aeronautical skills. Proof required first day of class.
Prerequisites: Pilot's Certificate or enrollment in Aviation program.
Lecture + Lab + Other: 2 + 0 + 0

AVTY F155  Preventive Maintenance
1-3 Credits
Offered As Demand Warrants
Mechanics of the airplane, its powerplant and systems to enable the student to evaluate malfunctions and make maintenance decisions. Designed for the pilot-owner. Proof required first day of class.
Prerequisites: Pilot's Certificate or enrollment in Aviation program.
Lecture + Lab + Other: 1-3 + 0 + 0

AVTY F200  Instrument Ground School
4 Credits
Offered As Demand Warrants
Instrument flight operations in detail, altitude instrument flying, air traffic control and navigation facilities, pilot responsibilities. IFR enroute charts, instrument approach procedures. Federal Aviation Regulations, flight planning, human factors and meteorology. Includes optional visits to FAA, RAPCO and ARTCC facilities. Proof required first day of class.
Prerequisites: Pilot's Certificate or enrollment in Aviation program.
Lecture + Lab + Other: 3 + 3 + 0

AVTY F201  Instrument Pilot Training
2 Credits
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Cost of flight instruction varies with location of instruction. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of instrument rating.
Prerequisites: Private or Commercial Pilot Certificate or AVTY F200 (may be taken concurrently) or passing score on FAA Private or Commercial Pilot written exam; department approval.
Lecture + Lab + Other: 2 + 0 + 0

AVTY F202  Flight Instructor Ground School
3 Credits
Offered As Demand Warrants
Preparation for the FAA certified flight instructor or advanced ground instructor written exam.
Prerequisites: Commercial pilot certificate.
Lecture + Lab + Other: 3 + 0 + 0

AVTY F203  Flight Instructor Flight Training
2 Credits
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training meets federal aviation regulations. Course completion requires awarding of certified flight instructor certificate.
Prerequisites: Commercial pilot certificate with instrument rating; AVTY F202; or concurrent enrollment; or passing score on FAA flight instructor written exams; department approval.
Lecture + Lab + Other: 2 + 0 + 0

AVTY F205  Instrument Instructor Flying
3 Credits
Offered As Demand Warrants
Preparation for certification as an instrument flight instructor.
Prerequisites: Commercial flight instructor certificate and department approval.
Lecture + Lab + Other: 3 + 0 + 0

AVTY F206  ATP Ground Instruction
4 Credits
Offered As Demand Warrants
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Cost of flight instruction varies with location of instruction. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of instrument rating.
Prerequisites: Commercial pilot certificate, 1500 hours of flight time as pilot or equivalent as described in FAR 61.155; AVTY F206 or passing score on FAA airline transport pilot written exam; current FAA first class medical certificate.
Lecture + Lab + Other: 2 + 0 + 0

AVTY F211  Instrument Flying
3 Credits
Offered As Demand Warrants
Qualification for single- or multi-engine FAA airline transport pilot certificate.
Prerequisites: Commercial pilot certificate, 1500 hours of flight time as pilot or equivalent as described in FAR 61.155; AVTY F206 or passing score on FAA airline transport pilot written exam; current FAA first class medical certificate.
Lecture + Lab + Other: 3 + 0 + 0
AVTY F220  Basic Flight Physiology  
3 Credits  
Offered As Demand Warrants  
Understanding the physiology of flight and using this knowledge to explain why certain phenomena occur to the mind and body during flight. Proof required first day of class.  
Prerequisites: Pilot’s Certificate or enrollment in Aviation program.  
Lecture + Lab + Other: 3 + 0 + 0

AVTY F226  Flight Engineer Ground School  
4 Credits  
Offered As Demand Warrants  
A comprehensive examination of the major systems of one of the following aircraft: turbojet (B-727, DC-8, B-707); turboprop (L-382, L-188); or reciprocating (DC-6). Preparation for the FAA flight engineer written exam.  
Prerequisites: FAA commercial pilot license and instrument rating or equivalent; department approval.  
Lecture + Lab + Other: 4 + 0 + 0

AVTY F231  Arctic Survival  
3 Credits  
Offered As Demand Warrants  
Use of principles, procedures, techniques and equipment to survive extreme Arctic conditions and assist in safe recovery. Lab required.  
Cross-listed with EMS F257.  
Lecture + Lab + Other: 3 + 0 + 0

AVTY F232  Aviation Astronomy and Navigation  
3 Credits  
Offered As Demand Warrants  
Air navigation and astronomy, including charts, equipment, star and constellation identification, and calculations.  
Lecture + Lab + Other: 3 + 0 + 0

AVTY F235  Elements of Weather  
3 Credits  
Offered As Demand Warrants  
Weather as it affects aircraft operators with an emphasis on interior Alaska.  
Lecture + Lab + Other: 3 + 0 + 0

AVTY F239  Aircraft Dispatcher  
4 Credits  
Offered As Demand Warrants  
Coordinating functions involving the aircraft and other departments of an airline business. Those wanting to be eligible for aircraft dispatcher certificate must be 23 years of age.  
Lecture + Lab + Other: 4 + 0 + 0

AVTY F405  Advanced Aircraft Operations  
3 Credits  
Offered As Demand Warrants  
Techniques and requirements associated with the operation of turbine-powered aircraft, remotely piloted aircraft, helicopters and STOL aircraft for pilots and air workers; safety; systems; aerodynamics; operating characteristics.  
Prerequisites: AVTY F100 or AVTY F111 or AVTY F301.  
Lecture + Lab + Other: 3 + 0 + 0

AVTY F410  Techniques of Bush Flying  
2 Credits  
Offered As Demand Warrants  
Flight training emphasizing emergency procedures in remote locations, off-airport operations, critical flight attitudes, low-level flight, terrain flying, special maneuvers and unique soft and short field takeoffs and landings.  
Prerequisites: AVTY F231; AVTY F235; AVTY F301; commercial rating; 20 hours taildragger time.  
Lecture + Lab + Other: 1 + 2 + 0

Biology (BIOL)  

BIOL F100X  Human Biology  
4 Credits  
Offered As Demand Warrants  
Introduction to scientific methodology and biological principles with a focus on humans as biological organisms. Topics include organization of the human body, human genetics, human development and the relationship between our bodies and health. Includes lecture, discussion, lab and projects. May not be used as biology elective credit for a major in biological sciences. Note: Intended for non-science majors and those seeking preliminary instruction before beginning study in health-related areas. Note: Available through UAF Community and Technical College, eLearning & Distance Education, Northwest and Rural campuses.  
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.  
Attributes: UAF GER Natural Science Req  
Lecture + Lab + Other: 3 + 3 + 0

BIOL F103L  Biology and Society Laboratory  
1 Credit  
Offered Spring  
A laboratory section only of BIOL F103X designed for transfer students that are non-science majors who have completed a natural science course with no laboratory at another institution. This lab cannot be used as a biology elective by biological science majors.  
Prerequisites: A natural science course with no laboratory.  
Lecture + Lab + Other: 0 + 3 + 0

BIOL F103X  Biology and Society  
4 Credits  
Offered Spring: Fall at Northwest Campus  
Fundamental principles of biology; emphasis on their application to humans in the modern world. Lectures, laboratory demonstrations, experiments and discussions of contemporary biological topics. For non-science majors; cannot be used as a biology elective by biological science majors.  
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.  
Attributes: UAF GER Natural Science Req  
Lecture + Lab + Other: 3 + 3 + 0
BIOL F104X  Natural History of Alaska  (n, a)  
4 Credits  
Offered Fall  
The physical environment peculiar to the North and important in determining the biological setting; major ecosystem concepts to develop an appreciation for land use and wildlife management problems in both terrestrial and aquatic situations. May not be used as biology elective credit for a major in biological science.  
Prerequisites: Placement in WRTG F111X; placement in DEV M105.  
Attributes: UAF GER Natural Science Req  

BIOL F111X  Human Anatomy and Physiology I  (n)  
4 Credits  
Offered Fall  
Integrated view of human structure and function. Provides a foundation in relevant chemistry, cell biology, histology and unifying concepts. Covers integumentary, skeletal, muscular and nervous systems.  
Prerequisites: Placement in WRTG F111X; placement in DEV M105.  
Attributes: UAF GER Natural Science Req  

BIOL F112X  Human Anatomy and Physiology II  (n)  
4 Credits  
Offered Spring  
Integrated view of human structure and function. Continuation of Human A&P I. Covers endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems.  
Prerequisites: BIOL F111X.  
Attributes: UAF GER Natural Science Req  

BIOL F115X  Fundamentals of Biology I  (n)  
4 Credits  
Offered Fall  
Introduction to the principles of biology for science majors, with emphasis on chemistry of life, cell structure, metabolism, genetics and animal form and function. Students for whom this course is required for their major will be given preference when space is limited.  
Prerequisites: Placement in WRTG F111X; placement in MATH F151X; CHEM F105X (may be taken concurrently).  
Recommended: High school biology.  
Attributes: UAF GER Natural Science Req  

BIOL F116X  Fundamentals of Biology II  (n)  
4 Credits  
Offered Spring  
Continuation of topics addressed in BIOL F115X, with emphasis on evolutionary biology, diversity of life, plant form and function and ecology. Students for whom this course is required for their major will be given preference when space is limited.  
Prerequisites: Placement in WRTG F111X; placement in MATH F151X; CHEM F105X (may be taken concurrently); BIOL F115X.  
Attributes: UAF GER Natural Science Req  

BIOL F120X  Introduction to Human Nutrition  
4 Credits  
Offered Spring  
This course provides students with an understanding of basic nutritional science and how the principles of nutrition can be used to achieve and maintain optimum health and well-being. Students will consider their own food choices in light of the scientific concepts covered in class. May not be used as a biology elective credit for a major in biological sciences.  
Prerequisites: Placement in WRTG F111X; placement in DEV M105.  
Attributes: UAF GER Natural Science Req  

BIOL F145  Introduction to Field Entomology  (a)  
1 Credit  
Offered Summer  
An introduction to field entomology techniques. Emphasized will be professional procedures to collect and process (sort, mount, and label) non-marine arthropods. The skills necessary to identify most groups to Order will be taught. Students will create a collection from which specimens will be chosen for the University of Alaska Museum Insect Collection and the Teaching Collection. Note: This course cannot be used as a biology elective by biological science majors.  

BIOL F151X  Introduction to Plant Biology  
4 Credits  
Offered Fall  
Plant biology including plant form and function (morphology, physiology and development), ecology (including interactions with herbivores, pollinators and microbes), conservation, evolution and economic botany. Emphasis on vascular plants (particularly angiosperms) but includes comparisons with nonvascular plants.  
Prerequisites: BIOL F115X; BIOL F116X.  

BIOL F165X  Principles of Genetics  
4 Credits  
Principles of inheritance; physiochemical properties of genetic systems.  
Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X; MATH F151X; LS F101X or successful completion of library skills competency test.  

BIOL F239  Introduction to Field Entomology  (a)  
1 Credit  
Offered Summer  
An introduction to field entomology techniques. Emphasized will be professional procedures to collect and process (sort, mount, and label) non-marine arthropods. The skills necessary to identify most groups to Order will be taught. Students will create a collection from which specimens will be chosen for the University of Alaska Museum Insect Collection and the Teaching Collection. Note: This course cannot be used as a biology elective by biological science majors.  

BIOL F240  Beginnings in Microbiology  
4 Credits  
Offered As Demand Warrants  
Fundamentals of microbiology. Survey of the microbial world, interactions between microbes and host, microbial human diseases, the environmental and economic impact of microorganisms. Provides background in basic and applied microbiology with emphasis on the role microorganisms play in human health and life. Offered at UAF Community and Technical College. Note: May not be used as biology elective credit for a major or minor in biological sciences.  
Prerequisites: One course in high school or college-level biology required.  
Recommended: One course in chemistry.  

BIOL F260  Invertebrate Zoology  (n)  
4 Credits  
Offered Spring Even-numbered Years  
Classification, structure, function, evolution and life histories of invertebrate animals.  
Prerequisites: BIOL F115X; BIOL F116X.  
Crosslisted with FISH F305; MSL F305.  

BIOL F305  Invertebrate Zoology  (n)  
4 Credits  
Offered Spring Even-numbered Years  
Classification, structure, function, evolution and life histories of invertebrate animals.  
Prerequisites: BIOL F115X; BIOL F116X.  
Crosslisted with FISH F305; MSL F305.  

BIOL F305  Invertebrate Zoology  (n)  
4 Credits  
Offered Spring Even-numbered Years  
Classification, structure, function, evolution and life histories of invertebrate animals.  
Prerequisites: BIOL F115X; BIOL F116X.  
Crosslisted with FISH F305; MSL F305.
BIOL F310  Animal Physiology  (n)  
4 Credits  
Offered Spring  
Animal function, including respiration, digestion, circulation, nerve and muscle function, hormones and reproduction.  
Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X; CHEM F106X.  
Lecture + Lab + Other: 3 + 3 + 0  

BIOL F312  Medical Physiology  
3 Credits  
This course focuses on pathology to teach advanced concepts in human anatomy and physiology. Case studies and diagnostic problem solving will be used to promote the application of knowledge. Offer As Demand Warrants  
Prerequisites: BIOL F115X and BIOL F116X; or BIOL F111X and BIOL F112X.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F331  Systematic Botany  (n, a)  
3 Credits  
Offered Spring Odd-numbered Years  
Classification of flowering plants with emphasis on Alaskan flora; familiarity with taxonomy (identification, nomenclature, classification), evolution (speciation, reproductive biology, adaptation, convergence, biogeography) and phylogenetics (morphology and molecules). Lab emphasizes learning representative families and genera of Alaskan flora using keys and manuals.  
Prerequisites: BIOL F239.  
Recommended: BIOL F260.  
Lecture + Lab + Other: 2 + 3 + 0  

BIOL F335  Principles of Epidemiology  (O/2)  
3 Credits  
Offered Spring  
Introduction to the basic concepts of epidemiology, with examples from human to veterinary medicine, including chronic and infectious disease epidemiology, social epidemiology, outbreak investigation, properties of tests, and an introduction to study design and surveillance.  
Prerequisites: STAT F200X.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F342  Microbiology  (n)  
4 Credits  
Offered Spring  
Morphology and physiology of microorganisms. The role of these organisms in the environment and their relationship to humans. Concepts of immunology. Laboratory stresses aseptic techniques for handling microorganisms.  
Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X.  
Lecture + Lab + Other: 3 + 3 + 0  

BIOL F360  Cell and Molecular Biology  (n)  
3 Credits  
Offered Fall or Spring  
An introduction to the structure and function of cells. Topics include: the structure and function of cellular components, including proteins, membranes and organelles; understanding how cells communicate; and how information is processed in the cell via DNA replication, transcription and translation.  
Prerequisites: BIOL F260; CHEM F105X; CHEM F106X (may be taken concurrently).  
Cross-listed with CHEM F360.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F371  Principles of Ecology  
4 Credits  
Offered Fall  
Prerequisites: BIOL F115X; BIOL F116X.  
Lecture + Lab + Other: 3 + 3 + 0  

BIOL F392  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 1-6  

BIOL F392P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 1-6  

BIOL F400  Capstone Project  
0 Credit  
This course should be taken by students during the semester they initiate a capstone research project. The capstone project may be completed within a designated course or by working individually with a faculty mentor; see the biological sciences program description for more information. The duration of the capstone project may exceed one semester.  
Prerequisites: Junior or senior standing.  
Lecture + Lab + Other: 0 + 0 + 0  

BIOL F401  Fundamentals of Pharmacology  
3 Credits  
Offered Fall Even-numbered Years  
This course emphasizes human and veterinary medical applications for aspiring health practitioners and biomedical scientists. It is an introduction to the science of drugs. Topics include excretion, absorption, movement of drugs throughout the body, receptor-drug binding, signal transduction, dose-response relationships, and associated physiological effects (beneficial and adverse).  
Prerequisites: BIOL F310, BIOL F360, CHEM F360, or CHEM F351.  
Crosslisted with BMSC F401.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F402  Biomedical and Research Ethics  (W, h)  
3 Credits  
Offered Fall  
Issues in biomedical ethics. Topics will vary but include discussion of moral principles and problems of research ethics and medical ethics, such as: animal and human experimentation; data management; informed consent; therapeutic and non-therapeutic research; physician/patient relationship; autonomy; assisted reproductive technologies; euthanasia; organ transplantation; and allocation of scarce medical resources.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior or senior standing; a course in philosophy, science, or nursing.  
Cross-listed with PHIL F402.  
Lecture + Lab + Other: 3 + 0 + 0
BIOL F403  Metabolism and Biochemistry (W)  
4 Credits  
Offered Fall  
Studies of the cells, genomics and proteomics of the nematode Caenorhabditis elegans have become a cornerstone of current biology. Using this simple and facile animal model, students will conduct their own biological investigations and, through this research learning, will gain an understanding of intermediary metabolism. Topics include major pathways of carbon, nitrogen, and lipid metabolism, structure and function of proteins, biological regulation and signaling, and longevity and aging. Student projects in this course may satisfy the capstone project requirement of the biological sciences degree.  
Prerequisites: COJO F111X or COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; CHEM F105X; CHEM F106X; BIOL F360 or CHEM F360.  
Lecture + Lab + Other: 2 + 2 + 6  
BIOL F406  Entomology (n)  
4 Credits  
Offered Fall Odd-numbered Years  
Biology of insects and related arthropods, with emphasis on evolution, ecology, behavior, biodiversity, morphology and systematics. Lab emphasizes identification and collection.  
Prerequisites: BIOL F115X; BIOL F116X; BIOL F371.  
Lecture + Lab + Other: 3 + 3 + 0  
BIOL F412  Exercise Physiology  
3 Credits  
Physiology responses and adaptation to exercise in humans, emphasizing energy metabolism, adipose and lean tissue, central and peripheral components of oxidative metabolism and the environmental influences on these parameters.  
Prerequisites: BIOL F111X and BIOL F112X; or BIOL F310.  
Stacked with BIOL F612.  
Lecture + Lab + Other: 3 + 0 + 0  
BIOL F415  Systematic and Comparative Biology  
4 Credits  
Offered Fall Even-numbered Years  
Concepts of systematic biology basic to a rigorous and complete understanding of modern evolutionary theory. Systematics provides the historical framework critical to a variety of comparative analyses in biology. Recent innovations in phylogenetic analyses will be explored in lecture and lab.  
Prerequisites: BIOL F481.  
Stacked with BIOL F615.  
Lecture + Lab + Other: 3 + 3 + 0  
BIOL F417  Neurobiology (O, n)  
3 Credits  
Offered Spring Even-numbered Years  
Organization and function of the vertebrate nervous system from the subcellular to the organismal levels. Neural bases of sensations, specific behaviors and homeostasis. Applications of basic neurobiological research to pathological conditions. Examples taken mostly from the recent vertebrate literature.  
Prerequisites: BIOL F310; COJO F131X or COJO F141X.  
Stacked with BIOL F617.  
Lecture + Lab + Other: 3 + 0 + 0  
BIOL F418  Biogeography (a)  
3 Credits  
Offered Fall  
This course explores the geography of life by examining linkages between climate, geomorphology, and ecological communities with emphasis on the biogeography of sub-Arctic, polar and alpine regions.  
Prerequisites: NRM F277 or BIOL F371; junior/senior standing.  
Cross-listed with GEOG F418.  
Stacked with BIOL F618; GEOG F618.  
Lecture + Lab + Other: 3 + 0 + 0  
BIOL F425  Mammalogy (n)  
3 Credits  
Offered Fall  
Variety of mammals, their behavior, life histories, identification, phylogeny and systematics, morphology, distribution and zoogeography.  
Prerequisites: BIOL F115X; BIOL F116X; junior standing or above.  
Lecture + Lab + Other: 2 + 3 + 0  
BIOL F426  Ornithology (O/2, W, n)  
3 Credits  
Offered Spring  
Evolution, anatomy, physiology, distribution, migration, breeding biology of birds, their classification and identification.  
Prerequisites: BIOL F115X; BIOL F116X; COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 2 + 3 + 0  
BIOL F427  Ichthyology (n)  
3 Credits  
Offered Spring  
Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology and importance to man.  
Prerequisites: BIOL F116X.  
Cross-listed with FISH F427.  
Lecture + Lab + Other: 3 + 3 + 0  
BIOL F433  Conservation Genetics  
3 Credits  
Offered Spring  
Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.  
Prerequisites: BIOL F371; BIOL F260.  
Recommended: NRM F277.  
Cross-listed with WLF F433.  
Stacked with BIOL F633; WLF F633.  
Lecture + Lab + Other: 3 + 0 + 0  
BIOL F434  Structure and Function of Vascular Plants (W)  
4 Credits  
Offered Spring Odd-numbered Years  
Morphology, anatomy and physiology of vascular plants, stressing the interrelationships between development, anatomy, growth, water relations, photosynthesis, transport and metabolism. Student projects in this course may satisfy the capstone project requirement of the biological sciences degree.  
Prerequisites: BIOL F115X and BIOL F116X; MATH F151X; STAT F200X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.  
Lecture + Lab + Other: 3 + 3 + 0
Biology (BIOL)

BIOL F435 Introduction to Biology of Cancer
3 Credits
Course covers current concepts and knowledge of cancer, including cancer research and cancer treatment.
Prerequisites: BIOL F360.
Stacked with BIOL F635.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F441 Animal Behavior (O/2, W)
3 Credits
Offered Fall
Evolutionary and ecological principles of individual and social behavior, genetic and physiological basis of behavior, techniques of behavioral observation, experimental manipulation and analysis. Design and implementation of independent research project on live animals. Student projects in this course may satisfy the capstone project requirement of the biological sciences degree.
Prerequisites: BIOL F481 (may be taken concurrently); BIOL F310; STAT F200X; COJO F31X or COJO F41X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 2 + 2 + 1

BIOL F455 Environmental Toxicology (O)
3 Credits
Offered Fall Odd-numbered Years
Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F31X or COJO F41X; one semester each of organic chemistry and cell or molecular biology.
Cross-listed with CHEM F455.
Stacked with BIOL F656; CHEM F655.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F456 Winter Ecology
3 Credits
Offered Fall
The focus of this course is on morphological, physiological and behavioral responses of animals and plants to winter conditions. Strategies of avoidance and tolerance of cold temperatures and low resources will be discussed. Analysis of physical and biological processes in seasonally snow-covered ecosystems. Includes principles of radiation and heat exchange, physics and chemistry of snow, thermoregulatory strategies in animals, and discussion of how winter affects trophic dynamics and population processes.
Prerequisites: BIOL F371.
Lecture + Lab + Other: 2 + 3 + 0

BIOL F457 Environmental Microbiology (W)
3 Credits
Offered Spring Even-numbered Years
This course focuses on the role of microorganisms in environmentally-relevant processes including bioremediation of pollutants, biogeochemical cycling, corrosion and wastewater treatment, including current methods for studying microbial diversity and function.
Prerequisites: BIOL F115X; BIOL F116X; BIOL F342; CHEM F105X; CHEM F106X.
Recommended: CHEM F351.
Stacked with BIOL F657.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F460 Principles of Virology
3 Credits
Offered Spring
This course will explore current concepts in the field of virology, with emphasis on the structure, genetic material, and replication strategies of various human and animal viruses. In addition, mechanisms of viral pathogenesis, viral diagnostics, prevention and treatment of viral infection will be presented.
Prerequisites: BIOL F342 or BIOL F360.
Stacked with BIOL F660.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F462 Infectious Diseases (O)
3 Credits
Offered Spring Odd-numbered Years
Covers infectious disease biology using examples of different pathogens and exploring the concepts of their biology and the implication of these principles on pathology, epidemiology and sociology of infectious diseases.
Prerequisites: BIOL F360 or BIOL F342.
Stacked with BIOL F662.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F465 Immunology (n)
3 Credits
Offered Fall
Adaptive immune response including its components and activation from cells to molecules, clonal selection, antigen recognition, and discrimination between foreign and self. Concepts applied on the level of intact organisms addressing allergies, autoimmunity, transplantation, tumors and disease (AIDS).
Prerequisites: BIOL F115X and BIOL F116X and BIOL F310; or BIOL F111X and BIOL F112X.
Stacked with DVM F606.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F466 Advanced Cell and Molecular Laboratory
3 Credits
Offered Spring
Modern molecular biological techniques including protein and nucleic acid gel electrophoresis, western blotting, cell fractionation, cellular respiration, enzymology and fluorescence microscopy. Lectures will be supplemented with reading from the primary literature. Student projects in this course may satisfy the capstone project requirements of the biological science degree. Student must also enroll in BIOL F400 to receive capstone credit.
Prerequisites: BIOL F360 or CHEM F360 may be taken concurrently.
Cross-listed with CHEM F466.
Lecture + Lab + Other: 2 + 4 + 0

BIOL F467 Ecosystems of Alaska (n)
3 Credits
Offered Summer Even-numbered Years; As Demand Warrants
Focus on the application of ecological principles to field research. Emphasis on the integration of ecology with climatology, geology and hydrology to understand the functioning of ecosystems at local and regional scales. One week of intensive lecture and library research followed by 10 days of field research in the major ecosystems of Alaska.
Prerequisites: An undergraduate course in ecology, geology, hydrology or climatology.
Lecture + Lab + Other: 2 + 3 + 0
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL F469</td>
<td>Landscape Ecology and Wildlife Habitat (O)</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions. Prerequisites: BIOL F371; COJO F131X or COJO F141X.</td>
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<td>Cross-listed with WLF F469.</td>
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<td>Stacked with BIOL F669; WLF F669.</td>
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<td>Lecture + Lab + Other: 2 + 3 + 0</td>
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<td>BIOL F471</td>
<td>Population Ecology (n)</td>
<td>3</td>
<td>Offered Spring</td>
<td>Biology of populations of plants and animals, including population structure, natality, mortality, population growth, regulation of population size, population interactions in competition, herbivory, predation and parasitism. Prerequisites: A calculus course; BIOL F371. Lecture + Lab + Other: 2 + 3 + 0</td>
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<td>BIOL F472</td>
<td>Community Ecology (W)</td>
<td>3</td>
<td>Offered Fall Even-numbered Years</td>
<td>Structure of plant and animal communities and their organization. Structuring forces of competition, predation, herbivory, mutualisms, and the flow of energy and nutrients. Latitudinal gradients in species richness and biogeography. Student projects in this course may satisfy the capstone project requirement of the biological sciences degree. Prerequisites: BIOL F371; WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X. Lecture + Lab + Other: 2 + 3 + 0</td>
</tr>
<tr>
<td>BIOL F473</td>
<td>Limnology (W)</td>
<td>3</td>
<td>Offered Fall</td>
<td>The ecology of inland waters emphasizing lakes and rivers. Lecture provides graphically oriented view of concepts. Laboratory involves team-based original research from proposal to manuscript. Student projects in this course may satisfy the capstone project requirement of the biological sciences degree. Prerequisites: BIOL F115X; BIOL F116X; BIOL F371; CHEM F105X; CHEM F106X; WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X. Lecture + Lab + Other: 2 + 3 + 0</td>
</tr>
<tr>
<td>BIOL F474</td>
<td>Plant Ecology (n)</td>
<td>4</td>
<td>Offered Spring Even-numbered Years</td>
<td>Principles and contemporary topics in plant ecology. Autoecology, community ecology, ecosystem ecology and evolutionary ecology. Prerequisites: BIOL F239, BIOL F371, STAT F200X. Lecture + Lab + Other: 3 + 3 + 0</td>
</tr>
<tr>
<td>BIOL F476</td>
<td>Ecosystem Ecology (O, n)</td>
<td>3</td>
<td>Offered Fall Odd-numbered Years</td>
<td>Focus on the biological and physical principles that govern functioning of terrestrial ecosystems. Emphasis on how plants, animals and microorganisms control the movement of water, carbon and nutrients through ecosystems. Includes discussion of scientific literature and collection of original data. Prerequisites: WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; BIOL F371; STAT F200X. Lecture + Lab + Other: 3 + 0.5 + 0</td>
</tr>
<tr>
<td>BIOL F481</td>
<td>Principles of Evolution</td>
<td>4</td>
<td></td>
<td>Patterns and processes of evolutionary change are used to explore the unifying principles of the biological sciences. Basic models of population genetics, quantitative genetics, development, phylogenetics and systematics are used to build a conceptual framework for study of living systems. Prerequisites: BIOL F260; STAT F200X (may be taken concurrently); junior standing. Stacked with BIOL F681. Lecture + Lab + Other: 3 + 3 + 0</td>
</tr>
<tr>
<td>BIOL F483</td>
<td>Stream Ecology</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>The ecology of streams and rivers focusing on physical, chemical and biological processes. Prerequisites: BIOL F115X; BIOL F116X; BIOL F371. Recommended: CHEM F105X; CHEM F106X. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>BIOL F485</td>
<td>Global Change Biology (W, n, a)</td>
<td>3</td>
<td>Offered Fall</td>
<td>Causes of climate change, the climate record, and the effects of past and forecast climate change on biophysical systems. Consideration of impacts on plants, animals, ice, and people with an emphasis on Alaska and the Arctic. Prerequisites: BIOL F371; CHEM F105X; CHEM F106X; WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X. Cross-listed with WLF F485. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>BIOL F486</td>
<td>Vertebrate Paleontology (n)</td>
<td>3</td>
<td>Offered Spring Odd-numbered Years</td>
<td>The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematics of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups. Prerequisites: BIOL F310 or GEOS F315. Cross-listed with GEOS F486. Stacked with GEOS F686; BIOL F686. Lecture + Lab + Other: 2 + 3 + 0</td>
</tr>
</tbody>
</table>
BIOL F487  Conceptual Issues in Evolutionary Biology  
3 Credits  
Offered Spring Odd-numbered Years  
Analysis of some of the main models which explain evolutionary change, followed by consideration of the practical implications these models have on the study of biological phenomena in general.  
Cross-listed with PHIL F487.  
Stacked with BIOL F687, PHIL F687.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F488  Arctic Vegetation Ecology: Geobotany  
3 Credits  
Offered Spring Even-numbered Years  
Arctic plants in relationship to Earth, including Arctic plant identification, climate, geology and geography controls on Arctic plant communities, snow ecology, applications to wildlife studies and current Arctic issues. Consists of lecture, labs and 1 winter field trip.  
Prerequisites: BIOL F115X and BIOL F116X; BIOL F239 or BIOL F371.  
Stacked with BIOL F688.  
Lecture + Lab + Other: 3 + 1 + 0  

BIOL F489  Vegetation Description and Analysis  
3 Credits  
Offered Fall Even-numbered Years  
Methods of vegetation science including sampling, classification, gradient analysis, ordination, field description and mapping. Field trips to the plant communities of interior Alaska.  
Prerequisites: BIOL F239, BIOL F371 or BIOL F331.  
Stacked with BIOL F689.  
Lecture + Lab + Other: 2 + 3 + 0  

BIOL F490  Research Experience in Biology (W)  
3 Credits  
Offered Spring  
Provides undergraduate opportunities for student research in advanced life science topics beyond typical undergraduate laboratory or course offerings. Students are required to publicly present their work and submit a final report summarizing their work and suitable as a component of a submission to a discipline-specific journal. Research areas range across all life sciences subjects (evolution, ecology, physiology, cell biology, biochemistry, molecular biology, etc.). A substantial level of background in the specific discipline, a level commensurate with having achieved junior or senior standing, is assumed.  
Prerequisites: CHEM F105X; CHEM F106X; BIOL F115X; BIOL F116X.  
Lecture + Lab + Other: 1 + 0 + 6  

BIOL F491  The Human Microbiome  
4 Credits  
Offered Fall  
Biology of host-associated microbiomes with an emphasis on the human microbiome. Investigate microbial impacts on the behavior, physiology and fitness of their host. Explore model and non-model systems. Student projects in this course may satisfy the capstone project requirements of the biological science degree.  
Prerequisites: BIOL F260 and STAT F200X.  
Stacked with BIOL F691.  
Lecture + Lab + Other: 3 + 3 + 0  

BIOL F492  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

BIOL F492P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

BIOL F498  Research  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0  

BIOL F602  Research Design  
3 Credits  
Offered Fall  
An introduction to the philosophy, performance and evaluation of hypothetical/deductive research in the biological sciences, with emphasis on hypothesis formulation and testing. Each student will develop a research proposal.  
Prerequisite: Graduate standing.  
Cross-listed with WLF F602.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F604  Scientific Writing, Editing and Revising in the Biological Sciences  
3 Credits  
Offered Spring  
For students who are ready to produce a manuscript or thesis chapter. Topics include the publishing process (e.g., the role of editors and reviewers), preparing to write (selecting a journal, authorship), the components of the scientific paper, revising and editing manuscripts, and responding to reviews. Students will produce a complete manuscript.  
Prerequisites: Graduate standing in Biology, Wildlife, or related discipline.  
Cross-listed with WLF F604.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F605  Animal Stable Isotope Ecology  
3 Credits  
Offered Spring Odd-numbered Years  
Recent primary literature in stable isotope ecology, which uses naturally occurring variation in stable isotopes of carbon, nitrogen, oxygen, hydrogen and sulphur as markers of organisational and ecological processes. The focus will be on animal studies, including diet reconstruction, mixing models, food web, metabolism, nutrient allocation and migration.  
Prerequisite: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F612  Exercise Physiology  
3 Credits  
Offered Fall  
Physiology responses and adaptation to exercise in humans, emphasizing energy metabolism, adipose and lean tissue, central and peripheral components of oxidative metabolism and the environmental influences on these parameters.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F613  Resilience Internship  
2 Credits  
Offered Fall  
Students of the Resilience and Adaptation Program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships are for eight to ten weeks of full time commitment and take place during the student’s first summer in the program. In autumn students meet to discuss their internship experiences and make public presentations.  
Prerequisites: ANTH F667, BIOL F667, ECON F667 or NRM F667; ANTH F668, BIOL F668, ECON F668 or NRM F668.  
Cross-listed with ANTH F617; ECON F613; NRM F613.  
Lecture + Lab + Other: 2 + 0 + 0
BIOL F615  Systematic and Comparative Biology  
4 Credits  
Offered Fall Even-numbered Years  
Concepts of systematic biology basic to a rigorous and complete understanding of modern evolutionary theory. Systematics provides the historical framework critical to a variety of comparative analyses in biology. Recent innovations in phylogenetic analyses will be explored in lecture and lab.  
Prerequisites: Graduate standing.  
Stacked with BIOL F415.  
Lecture + Lab + Other: 3 + 3 + 0

BIOL F616  Ecological Background for Resilience and Adaptation  
(a)  
1 Credit  
Offered Fall  
Provides the ecological background that is necessary for understanding the role of ecology in complex systems involving interactions among biological, economic, and social processes. Designed for incoming students of the Resilience and Adaptation Program (RAP), who have not received training in ecology.  
Prerequisites: Graduate standing.  
Cross-listed with NRM F616.  
Lecture + Lab + Other: 1 + 0 + 0

BIOL F617  Neurobiology  
3 Credits  
Offered Spring Even-numbered Years  
Organization and function of the vertebrate nervous system from the subcellular to the organismal levels. Neural bases of sensations, specific behaviors and homeostasis. Applications of basic neurobiological research to pathological conditions. Examples taken mostly from the recent vertebrate literature.  
Prerequisites: BIOL F310; graduate standing.  
Stacked with BIOL F417.  
Lecture + Lab + Other: 3 + 0 + 0

BIOL F618  Biogeography  
(a)  
3 Credits  
Offered Fall  
This course explores the geography of life by examining linkages between climate, geomorphology, and ecological communities with emphasis on the biogeography of sub-Arctic, polar and alpine regions.  
Prerequisites: Graduate standing.  
Cross-listed with GEOG F618.  
Stacked with BIOL F418; GEOG F418.  
Lecture + Lab + Other: 3 + 0 + 0

BIOL F628  Advanced Immunology  
3 Credits  
Offered Spring Even-numbered Years  
Advanced level of knowledge and understanding of the structural and molecular basis of the innate and adaptive immune responses in terms of a complex system.  
Prerequisites: BIOL F465; BIOL F360.  
Cross-listed with CHEM F628.  
Lecture + Lab + Other: 3 + 0 + 0

BIOL F632  Veterinary Bacteriology and Mycology  
2 Credits  
This course will discuss bacterial structure, differences between bacterial families, and fungi and their pathogenesis. The basic principles of bacterial and fungal pathogenesis will be presented. Host response to bacterial or fungal infection, immunity and the role of vaccines in disease prevention will be explained. Note: Effective Spring 2019 this course changed from 3 to 2 credits.  
Prerequisites: Successful completion of first-semester veterinary courses.  
Cross-listed with DVM F637; MSL F637.  
Lecture + Lab + Other: 2 + 0 + 0

BIOL F633  Conservation Genetics  
4 Credits  
Offered Spring  
Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.  
Prerequisites: BIOL F260; BIOL F371.  
Recommended: NRM F277.  
Cross-listed with WLF F633.  
Stacked with BIOL F433; WLF F433.  
Lecture + Lab + Other: 3 + 3 + 0

BIOL F634  Veterinary Parasitology  
2 Credits  
Offered Spring  
Biology of helminth, arthropod and protozoan pathogens of animals with emphasis on common infectious diseases encountered in veterinary practice will be discussed. In addition, the course will discuss treatment and management options for parasitic infections of domestic animals.  
Cross-listed with DVM F638; MSL F638.  
Lecture + Lab + Other: 2 + 0 + 0

BIOL F635  Introduction to Biology of Cancer  
3 Credits  
Course covers current concepts and knowledge of cancer, including cancer research and cancer treatment.  
Prerequisites: BIOL F360.  
Stacked with BIOL F435.  
Lecture + Lab + Other: 3 + 0 + 0

BIOL F639  Veterinary Virology  
2 Credits  
Offered Spring  
This course will explore current concepts in the field of veterinary virology, with an emphasis on the viral structure, viral genetic material and viral replication strategies of various animal viruses. In addition, mechanisms of viral pathogenesis, prevention and treatment of viral infection will be presented.  
Cross-listed with DVM F639; MSL F639.  
Lecture + Lab + Other: 2 + 0 + 0
BIOL F640  Veterinary Pathology/Biology of Disease I
5 Credits
Offered Spring
This course will discuss basic principles of disease with special emphasis on processes likely to be encountered veterinary practice. We will discuss these topics organized by underlying disease mechanism. The discussions will move from general cell mediated processes to more specific disease mechanisms.
Prerequisites: Successful completion of first semester veterinary courses.
Cross-listed with MSL F642; DVM F640.
Offered Spring: 4 + 3 + 0

BIOL F644  Advanced Topics in Evolution
3 Credits
Offered Spring Even-numbered Years
Modern theory and subdisciplinary directions in the expanding field of evolutionary biology. Topics include adaptation, speciation, reinforcement, comparative method, group selection, phylogeography, advanced systematics, geographic variation and the role of evolutionary biology in society. May be repeated for credit when content varies.
Prerequisites: Undergraduate course in evolution.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F647  Global to Local Sustainability
3 Credits
Offered Fall
Explores the basic principles that govern resilience and change of ecological and social systems. Principles are applied across a range of scales from local communities to the globe. Working within and across each of these scales, students address the processes that influence ecological, cultural and economic sustainability, with an emphasis on northern examples.
Prerequisites: Graduate standing.
Cross-listed with ANTH F647; ECON F647; NRM F647.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F649  Integrated Assessment and Adaptive Management
3 Credits
Offered Spring
An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management. Collectively, the class builds a portfolio of cases and conducts an integrated assessment. Note: In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements.
Prerequisites: Graduate student standing in a natural science, social science, or interdisciplinary program at UAF or another university.
Recommended: ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.
Cross-listed with ANTH F649; ECON F649; NRM F649.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F656  Environmental Toxicology
3 Credits
Offered Fall Odd-numbered Years
Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.
Prerequisites: CHEM F351; or one semester each of organic chemistry and cell or molecular biology.
Cross-listed with CHEM F655.
Stacked with BIOL F455; CHEM F455.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F657  Environmental Microbiology
3 Credits
Offered Spring Even-numbered Years
This course focuses on the role of microorganisms in environmentally-relevant processes including bioremediation of pollutants, biogeochemical cycling, corrosion and wastewater treatment, including current methods for studying microbial diversity and function.
Prerequisites: BIOL F115X; BIOL F116X; BIOL F342; CHEM F105X; CHEM F106X.
Recommended: CHEM F351.
Stacked with BIOL F457.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F660  Principles of Virology
3 Credits
Offered Spring
This course will explore current concepts in the field of virology, with emphasis on the structure, genetic material, and replication strategies of various human and animal viruses. In addition, mechanisms of viral pathogenesis, viral diagnostics, prevention and treatment of viral infection will be presented.
Prerequisites: Graduate standing.
Stacked with BIOL F460.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F662  Concepts of Infectious Disease
3 Credits
Offered Spring Odd-numbered Years
Covers infectious disease biology using examples of different pathogens and exploring the concepts of their biology and the implication of these principles on pathology, epidemiology and sociology of infectious diseases.
Prerequisites: Graduate standing; BIOL F360 or BIOL F342.
Stacked with BIOL F462.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F665  Aquatic Entomology
2 Credits
Offered Fall Odd-numbered Years
Aquatic invertebrate taxonomy, mostly to the family level, and ecology. Includes field trips to learn collecting techniques and habitats.
Prerequisites: Graduate standing. Students must be able to safely wade in streams and wetlands.
Cross-listed with FISH F665.
Lecture + Lab + Other: 1 + 3 + 0
BIOL F667  Resilience Seminar I
1 Credit
Offered Fall
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.
Prerequisites: Graduate standing.
Cross-listed with ANTH F667, ECON F667 or NRM F667.
Lecture + Lab + Other: 2 + 0 + 0

BIOL F668  Resilience Seminar II
1 Credit
Offered Spring
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.
Prerequisites: Graduate standing.
Cross-listed with ANTH F667, ECON F667 or NRM F667.
Lecture + Lab + Other: 2 + 0 + 0

BIOL F669  Landscape Ecology and Wildlife Habitat
3 Credits
Offered As Demand Warrants
A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions.
Prerequisites: Graduate standing.
Cross-listed with WLF F669.
Stacked with BIOL F469; WLF F469.
Lecture + Lab + Other: 2 + 3 + 0

BIOL F672  Ecosystem Processes
3 Credits
Offered Fall Odd-numbered Years
A comparative approach to the structural and functional components of terrestrial ecosystems, emphasizing primary and secondary production and the dynamics of nutrient cycling processes. Interactions between producers, consumers and decomposition processes, and effects on the efficiencies of nutrient and energy transfers.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 2 + 2 + 0

BIOL F675  Plant Physiological Ecology
3 Credits
Offered Fall Even-numbered Years
Physiological ecology of dormancy, germination, growth, photosynthesis, water relations and nutrition with an emphasis on northern and other stressful environments; relationship to community and ecosystem processes.
Prerequisites: Graduate standing; BIOL F239; BIOL F434; BIOL F474.
Lecture + Lab + Other: 2 + 3 + 0

BIOL F679  Cellular and Molecular Neuroscience
3 Credits
Offered Fall Even-numbered Years
The goal of this course is to provide an overview of the cellular and molecular underpinnings of signaling in the nervous system. Discussions will be focused on properties of excitable membranes, synaptic transmission, and neurological integration. Fundamentals of the functional properties of neurons will provide the background for discussions of small neuronal circuits that regulate behavior, the cellular/molecular basis of learning and memory, and pharmacological approaches for the treatment of neuronal pathologies.
Prerequisites: Two F300-level courses in BIOL or CHEM; MATH F251X or MATH F252X.
Recommended: MATH F252X.
Cross-listed with CHEM F670.
Stacked with CHEM F470.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F680  Data Analysis in Biology
3 Credits
Offered Fall
Biological applications of nonparametric statistics, including tests based on binomial and Poisson distributions, analysis of two-way and multiway contingency tables, and tests based on ranks; multivariate statistics, including principal component analysis, ordination techniques, cluster and discriminant analysis; and time-series analysis. Introduction to the use of the computer and use of statistical packages. Each student will analyze a data set appropriate to the student’s research interests.
Prerequisites: STAT F200X; STAT F401; graduate standing in a biologically oriented field.
Cross-listed with WLF F680.
Lecture + Lab + Other: 2 + 3 + 0

BIOL F681  Principles of Evolution
4 Credits
Patterns and processes of evolutionary change are used to explore the unifying principles of the biological sciences. Basic models of population genetics, quantitative genetics, development, phylogenetics and systematics are used to build a conceptual framework for study of living systems.
Prerequisites: Graduate standing with courses in genetics, ecology and statistics; STAT F200X (may be taken concurrently).
Stacked with BIOL F481.
Lecture + Lab + Other: 3 + 3 + 0

BIOL F686  Vertebrate Paleontology
3 Credits
Offered Spring Odd-numbered Years
The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematic of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups.
Prerequisites: Graduate standing.
Cross-listed with BIOL F486; GEOS F486.
Stacked with GEOS F686.
Lecture + Lab + Other: 2 + 3 + 0
Biomedical Science (BMSC)

BIOL F687 Conceptual Issues in Evolutionary Biology
3 Credits
Offered Spring Odd-numbered Years
Analysis of some of the main models which explain evolutionary change followed by consideration of the practical implications these models have on the study of biological phenomena in general.
Cross-listed with PHIL F687.
Stacked with BIOL F487; PHIL F487.
Lecture + Lab + Other: 3 + 0 + 0
BIOL F688 Arctic Vegetation Ecology: Geobotany
3 Credits
Offered Spring Even-numbered Years
Arctic plants in relationship to Earth, including Arctic plant identification, climate, geology and geography controls on Arctic plant communities, snow ecology, applications to wildlife studies and current Arctic issues.
Consists of lecture, labs and 1 winter field trip.
Prerequisites: BIOL F115X and BIOL F116X; BIOL F239 or BIOL F371.
Stacked with BIOL F488.
Lecture + Lab + Other: 3 + 1 + 0
BIOL F689 Vegetation Description and Analysis
3 Credits
Offered Fall Even-numbered Years
Methods of vegetation science including sampling, classification, gradient analysis, ordination, field description and mapping. Field trips to the plant communities of interior Alaska.
Prerequisites: BIOL F239, BIOL F371 or BIOL F331.
Stacked with BIOL F489.
Lecture + Lab + Other: 2 + 3 + 0
BIOL F691 The Human Microbiome
4 Credits
Offered Fall
Biology of host-associated microbiomes with an emphasis on the human microbiome. Investigate microbial impacts on the behavior, physiology and fitness of their host. Explore model and non-model systems. Student projects in this course may satisfy the capstone project requirements of the biological science degree.
Prerequisites: BIOL F260 or STAT F200X.
Stacked with BIOL F491.
Lecture + Lab + Other: 3 + 3 + 0
BIOL F692 Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0
BIOL F692P Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0
BIOL F698 Non-thesis Research/Project
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0
BIOL F699 Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

Biomedical Science (BMSC)

BMSC F214 Introduction to Biomedical Research
(s)
2 Credits
Offered Fall
This seminar aims to introduce students to research methods by providing students who are new to research and research methods opportunities to learn about, discuss and conduct ethical activities in a low stress, small group seminar setting. Organized in a small group, seminar format, the ultimate objective is for seminar participants to develop self-efficacy and interest in pursuing research methods courses and research opportunities early on and throughout their undergraduate studies.
Lecture + Lab + Other: 2 + 0 + 0
BMSC F224 Entering Research: Undergraduate Research Experience
2 Credits
Offered Spring
Required course for BLaST scholars and open to all UAF students. This course will facilitate mentored research experience for undergraduate students. Students will participate in advanced research topics from outside the usual undergraduate laboratory offerings. Students will be required to actively participate in research activities and report on progress and growth throughout the course. Course will conclude with a semester research report and presentation on research activities.
Prerequisites: BMSC F214.
Lecture + Lab + Other: 1 + 3 + 0
BMSC F314 Research Project Foundations
1 Credit
Offered Fall
Supports undergraduate research projects with strategies and methodologies when establishing a scientific research project. Also foster the personal, academic and career growth of the student. Topics include personal wellness, academic and career planning, mentoring relationships, project management, scientific writing, and communication strategies.
Prerequisites: BMSC F224.
Lecture + Lab + Other: 1 + 0 + 0
BMSC F401 Fundamentals of Pharmacology
3 Credits
Offered Fall Even-numbered Years
This course emphasizes human and veterinary medical applications for aspiring health practitioners and biomedical scientists. It is an introduction to the science of drugs. Topics include excretion, absorption, movement of drugs throughout the body, receptor-drug binding, signal transduction, dose-response relationships, and associated physiological effects (beneficial and adverse).
Prerequisites: BIOL F310, BIOL F360, CHEM F351 or CHEM F360.
Crosslisted with BIOL F401.
Lecture + Lab + Other: 3 + 0 + 0
**Business Administration (BA)**

**BA F151X  Introduction to Business**  (s)
3 Credits
Business organization, business theory and the nature of major business functions such as management, finance, accounting, marketing and personnel administration are the main components of this course. This course will also focus on the methods and data required to research and analyze good business practices and decisions while developing these major business functions. Additionally, this course will review opportunities and requirements for professional business careers.

**Attributes:** UAF GER Social Sciences Req

**Lecture + Lab + Other:** 3 + 0 + 0

**BA F235  Entrepreneurship**
3 Credits
Offered As Demand Warrants
This course takes a hand-on, problem-based learning approach that works through real problems faced by entrepreneurs and small business owners. Using real-world scenarios and exercises throughout, the student will gain experience in the roles of small business, financial analyst, marketer and business owner in order to find solutions. A business research approach preparing students to help themselves and others within their community to complete a feasibility study.

**Prerequisites:** BA F151X; ACCT F261X.

**Lecture + Lab + Other:** 3 + 0 + 0

**BA F241  Advertising, Sales and Promotion**
3 Credits
Offered Fall or Spring
Advertising, publicity, sales management, sales promotion, direct marketing and the interrelationships necessary for effective promotions in domestic or international, small or large, goods or services, and for-profit or nonprofit organizations.

**Lecture + Lab + Other:** 3 + 0 + 0

**BA F253  Internship in Business**
1-3 Credits
Supervised work experience in an approved position related to the student’s career interests or objectives. Number of credits depends on type of position and time worked. No student can count more than eight internship credits towards a degree.

**Prerequisites:** Approval of program or department head.

**Lecture + Lab + Other:** 1-3 + 1-3 + 0

**BA F254X  Personal Finance (s)**  (s)
3 Credits
This course will give you the ability to use your knowledge and skills to manage your financial resources effectively for a lifetime of financial wellbeing. You will learn personal finance concepts and information as well as practical application that will empower you to save, budget, avoid debt and spend wisely. You will take what you learn and start practicing sound financial habits throughout the semester that will serve you well for the rest of your life.

**Attributes:** UAF GER Social Sciences Req

**Lecture + Lab + Other:** 3 + 0 + 0

**BA F280  Sport Leadership**
3 Credits
Offered As Demand Warrants
Provides leadership theory and develop leadership skills for application internal and external to their sport. Focus on the identification and development of leadership skills/abilities and application within the classroom, a sport and for an on-campus project.

**Cross-listed with** LEAD F280; SPRT F280.

**Lecture + Lab + Other:** 3 + 0 + 0

**BA F281X  Introduction to Sport Management**
3 Credits
Offered As Demand Warrants
Provides a basic understanding of the methods employed to manage amateur and professional sports organizations and the legal issues involved. Topics such as stadium financing, risk management contracts and human resource management, data collection, public versus private sector labor laws, collective bargaining and drug testing will be examined. Basic management techniques, theory and problems associated with the field sport management are discussed along with history and current trends in sport management.

**Cross-listed with** SPRT F281X.

**Attributes:** UAF GER Social Sciences Req

**Lecture + Lab + Other:** 3 + 0 + 0

**BA F305  Leadership Alaska: Making a Difference**  (s)
4 Credits
Offered Spring
A leadership seminar and practicum which will involve building community, developing networks, learning leadership theories, understanding civic responsibility, and creating an action project through which the student becomes a leader.

**Prerequisites:** Either be an Alaska Scholar; an Honors student; a member of the National Society of Collegiate Scholars; have a 3.25 GPA.

**Lecture + Lab + Other:** 4 + 0 + 0

**BA F307  Introductory Human Resources Management**
3 Credits
Introduction to management principles and personnel practice in industry, analysis of labor-management problems, methods and administration of recruiting, selecting, training and compensating employees, and labor laws and their applications.

**Prerequisite:** WRTG F111X.

**Lecture + Lab + Other:** 3 + 0 + 0

**BA F308  Professional Development: How to Prepare for a Job and Other Survival Skills**
1 Credit
Offered As Demand Warrants
The course involves the development and use of skills in critical analysis and composition of business and personal communications. This includes evaluating the mechanics and content resumes, letters and emails. The course is designed to give students a comprehensive view of planning and implementation of career advancement strategies, interviews, career action plans and other job seeking skills used in business etiquette, dress, personal brand and culture.

**Prerequisites:** WRTG F111X; COJO F131X or COJO F141X or COJO F121X; BA F151X or ACCT F261X.

**Lecture + Lab + Other:** 1 + 0 + 0
BA F309  Professional Development: Finding a Career
1 Credit
Offered As Demand Warrants
The course involves the development and use of skills in critical analysis and composition of business and personal communications. This includes evaluating the mechanics and content of resumes, letters, reports and memoranda. The course is designed to give students a comprehensive view of planning and implementation of career advancement strategies, crafting an effective social media presence, interviews, second round interrogations and site visits.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; BA F308.
Lecture + Lab + Other: 1 + 0 + 0

BA F310  Professional Development: Being Successful in Your Career
1 Credit
Offered As Demand Warrants
The course involves the development and use of skills in critical analysis and composition of business and personal communications. This includes evaluating the content of resumes and cover letters. The course is designed to give students a comprehensive view of planning and implementation of career advancement strategies, such as interviews, negotiations, networking skills, how to run meetings and facilitate presentations, conflict management, ethics, using social media and networking career advancement, and the interpersonal skills necessary to be effective in a business.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; BA F308.
Lecture + Lab + Other: 1 + 0 + 0

BA F317  Employment Law  (W)
3 Credits
Offered Fall or Spring
Basic personnel and human resource management law, including labor law and current management practices in administering collective bargaining agreements. Emphasis on the major federal and Alaska state laws affecting personnel management.
Prerequisites: BA F307 or concurrent enrollment; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

BA F323X  Business Ethics  (h)
3 Credits
Offered Fall, Spring, Summer; As Demand Warrants
A grounding in ethical theories and basic issues of moral thought, with examples which highlight the pitfalls in practical ethics which future managers are likely to face, and the need to design organizations so as to promote ethical behavior.
Prerequisites: Junior standing.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

BA F325  Financial Management
3 Credits
Time value of money, bond and stock valuation, capital budgeting, risk-return trade-offs and option pricing.
Prerequisites: ACCT F261X; ECON F201X; ECON F202X; ECON F227; MATH F230X or MATH F251X.
Lecture + Lab + Other: 3 + 0 + 0

BA F330  The Legal Environment of Business
4 Credits
The judicial system, legal processes, administrative procedures, law of torts, contract and agency government regulation of business, business ethics, corporate social responsibility and the uniform commercial code.
Lecture + Lab + Other: 4 + 0 + 0

BA F343  Principles of Marketing
3 Credits
Management of a firm's marketing effort focusing on products, distribution, pricing and promotion to targeted consumers. Practices appropriate to domestic or international, small or large, goods or services, and for-profit or nonprofit organizations included.
Prerequisites: WRTG F111X; COJO F131X or COJO F141X.
Lecture + Lab + Other: 3 + 0 + 0

BA F349  Sales Management
3 Credits
Lecture + Lab + Other: 3 + 0 + 0

BA F360  Operations Management
3 Credits
Operations management with an emphasis on systematic planning, design and operation of the processes that produce goods and deliver services that customers recognize to be of superior quality. Topics include operations strategy, process design, quality control, statistical process control, project scheduling, material requirements planning and just-in-time systems.
Prerequisites: AIS F101; ECON F227.
Lecture + Lab + Other: 3 + 0 + 0

BA F390  Organizational Theory and Behavior
3 Credits
Understanding how and why organizations behave as they do, assessing whether the behavior is functional or dysfunctional, and learning to understand and change motivation, leadership, communications, group dynamics, conflict management, layout, technology, structure and policies to create high-functioning organizations.
Prerequisite: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

BA F421  Business Analytics
3 Credits
Offered As Demand Warrants
This class provides an introduction and application of data analytics in accounting and business contexts. Students will develop an understanding of analytic concepts and how they apply to the investigation of business data relationships and trends.
Prerequisites: ECON F227X or STAT F200X; ACCT F261X; MATH F122X.
Lecture + Lab + Other: 3 + 0 + 0

BA F423  Investment Analysis  (W)
3 Credits
Offered Spring
Introduction to investment analysis. Presents an understanding of the investment environment and analytical tools in investing. Intended for undergraduate students.
Prerequisites: BA F325; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0
BA F424  Real Estate and Alternative Investments  
3 Credits  
Offered Spring  
Develop skills required to value and finance residential and commercial real estate. Financing instruments, markets and taxation issues specific to real estate are covered in the first half; alternative investments such as REITs will be presented in the second half of the course.  
Prerequisites: BA F325.  
Lecture + Lab + Other: 3 + 0 + 0

BA F435  Executive MBA: Marketing  
3 Credits  
Offered Fall or Spring  
The purpose of this course is to give you an understanding of the trends, methods and practices utilized for marketing research (SMR) by large firms, small businesses and non-profits. You will learn to prepare, implement and measure a social media marketing campaign. Topics of interest include how consumers respond to and interact with social media, how businesses develop an effective social media campaign, how to set social media marketing goals and how to measure results. After completing this course, you will be a more sophisticated consumer as well as be able to assemble a basic social media plan for an organization.  
Prerequisites: BA F343 or PSY/SOC F330.  
Lecture + Lab + Other: 3 + 0 + 0

BA F443  Social Media Marketing  
3 Credits  
Offered As Demand Warrants  
The purpose of this course is to give you an understanding of the concepts, methods and practices utilized for social media marketing (SMM) by large firms, small businesses and non-profits. You will learn to prepare, implement and measure a social media marketing campaign. Topics of interest include how consumers respond to and interact with social media, how businesses develop an effective social media campaign, how to set social media marketing goals and how to measure results. After completing this course, you will be a more sophisticated consumer as well as be able to assemble a basic social media plan for an organization.  
Prerequisites: BA F343; AIS F101.  
Lecture + Lab + Other: 3 + 0 + 0

BA F445  Marketing Research  
3 Credits  
Offered Fall or Spring  
Basic processes and tools of marketing research with emphasis on utilization of research findings as an integral part of the managerial decision-making process. Techniques of qualitative and quantitative data-gathering and analysis to solve a marketing problem. Practices appropriate to domestic or international, small or large, goods or services, and for-profit or nonprofit organizations.B.A. standing; or permission of the SOM advisor.  
Prerequisites: BA F343; ECON F227; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper division B.  
Lecture + Lab + Other: 3 + 0 + 0

BA F447  Compensation Management  
3 Credits  
Offered Fall or Spring  
Theory and practice of wage and salary, benefits and risk management. Planning, administration, auditing, adjusting and budgeting for compensation and risk.  
Prerequisites: BA F307; COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0

BA F453  Internship in Business Administration  
1-3 Credits  
Offered As Demand Warrants  
A supervised practical work experience to enable students to apply their course work in a business environment. Admission dependent upon approved sponsorship arrangements. Repeated for a maximum of six credits.  
Prerequisites: Accumulative 3.0 GPA in ACCT and BA courses.  
Lecture + Lab + Other: 0 + 2-9 + 0

BA F454  Student Investment Fund  
3 Credits  
Hands-on experience in portfolio management. Students will be making investment and diversification decisions affecting the $500,000 Student Investment Fund.  
Prerequisites: COJO F131X or COJO F141X; BA F325; upper division BBA standing; permission of the SOM advisor or instructor.  
Lecture + Lab + Other: 3 + 0 + 0

BA F455  Portfolio Management  
3 Credits  
The second course involved with the hands-on management of the $500,000 Student Investment Fund. Students will carry out the duties of officers of the fund and will be responsible for portfolio diversification and management decisions affecting the fund.  
Prerequisites: BA F454; upper division BBA standing; permission of the SOM advisor or instructor.  
Lecture + Lab + Other: 3 + 0 + 0

BA F456  Small Business Management  
3 Credits  
Offered Fall or Spring  
Operations and special problems of the small business with emphasis on both existing firms and new ventures. Starting new businesses, buying going concerns, acquiring and operating franchises, establishing lines of credit, management, legal matters, profit planning, pricing, inventory levels, record systems, tax regulations and employee supervision.  
Prerequisites: ACCT F261X; ACCT F262; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0

BA F457  Training and Management Development  
3 Credits  
Offered Fall or Spring  
Theory and practice of employee training programs, needs assessments, learning theories, instructional design, training techniques and evaluation, management development and career development techniques and practices.  
Prerequisites: BA F307.  
Lecture + Lab + Other: 3 + 0 + 0

BA F458  Real Estate Investment Fund  
3 Credits  
Offered As Demand Warrants  
In this course, students will manage UAF’s Real Estate Investment Trust Fund. The fund (currently valued at approximately $300,000) aims to outperform the MSCI REIT Index on a risk-adjusted basis. Students will manage all investment decisions, per the REIT Fund by-laws, with the support of their faculty advisor.  
Prerequisites: BA F454 and BA F455.  
Lecture + Lab + Other: 3 + 0 + 0
### BA F460  International Business  
3 Credits  
Offered Fall or Spring  
Relationships among nations with particular emphasis on the business, economic, and sociocultural institutions that influence the performance of managers. Formulation of objectives, strategies and organizational structures within the context of international diversity.  
**Prerequisites:** COJO F131X or COJO F141X.  
**Recommended:** Senior standing.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F461  International Finance  
3 Credits  
Offered Fall or Spring  
Development of analytical skills, logical thought processes and information literacy necessary to make and implement investment decisions in a global setting.  
**Prerequisites:** BA F325.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F462  Corporate Strategy  
3 Credits  
Offer a integrative approach to strategy formation and implementation to achieve organization goals. Students will be introduced to theoretical perspectives and associated methodologies directed toward resolving the unstructured problems and opportunities which confront general managers at the highest levels of an organization. B.A. standing; or permission of the SOM advisor.  
**Prerequisites:** COJO F131X or COJO F141X; ACCT F262; BA F325; BA F343; BA F360; BA F390; ECON F321 or ECON F322 or ECON F324 or ECON F350; upper division B.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F467  Current Topics in Management  
3 Credits  
Offered Fall or Spring  
Examines current management trends with regard to major theories and practices in the field. Topics of interest could include organizational development, performance appraisal, personnel selection and international human resources management.  
**Prerequisites:** BA F307; BA F390.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F470  Leadership Theory and Development  
3 Credits  
Offered Alternate Spring  
A guide for interpreting leadership theory and research as well as practical advice on how to be a better leader. The course acts as a review of all functional leadership theories, how the theories relate to one another, and how students can apply the leadership theories to their own personal development.  
**Prerequisite:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; BA F390.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F472  Leading Change  
3 Credits  
Offered Alternate Fall  
The course is designed to explore some of the technologies for intervening in organizations to develop their capability and to achieve change. We explore the way in which change agents deal with their conflicting demands. The thrust of the text is how to become a leading change agent within an organization and extend your understanding and application of key concepts and theories.  
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; BA F390.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F481  Entertainment and Sport Event Management  
3 Credits  
Offered As Demand Warrants  
This course is designed to provide the student with knowledge pertaining to the various aspects of managing a public sport and/or entertainment event and their production. Some of the topics discussed include economic impact, sponsorship, risk management, staff and volunteers, customer service, concessions, crowd management and technology. Sport will also be discussed from a unique Alaskan viewpoint, as a sport often takes the form of an event and/or entertainment that differs from the traditional "professional sporting event".  
**Prerequisites:** BA F343, BA F281X; COJO F141X.  
**Cross-listed with** SPRT F481.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F482  Sport Marketing  
3 Credits  
This course provides a decision-orientated overview of sport marketing management in sport organizations. This course is designed to acquaint students with comprehensive fundamental theories and issues in sport marketing, grounded within traditional marketing principles, and emphasizing unique application to the sport industry. Accordingly, the most basic objectives of the course are to provide you with a broad introduction to sport marketing concepts, the role of sport marketing in society, the role of sport marketing within organizations and the various factors that influence marketing decision-making.  
**Prerequisites:** BA F343, BA F281X; COJO F141X.  
**Cross-listed with** SPRT F482.  
**Lecture + Lab + Other:** 3 + 0 + 0  

### BA F483  Sport Sales  
3 Credits  
This course is designed to provide the student with knowledge pertaining to the various aspects of sales and ticketing techniques to help them in their pursuit of employment. Some of the topics discussed include ticket distribution, customer service, ticketing software as well as real-life ticket sales campaigns. Sport sales will also be discussed from a unique Alaska viewpoint, as sport sales can differ from the traditional "professional sporting event" with the unique nature of Alaskan entertainment and sport.  
**Prerequisites:** BA F343, BA F281X; COJO F131X or COJO F141X.  
**Cross-listed with** SPRT F483.  
**Lecture + Lab + Other:** 3 + 0 + 0
BA F490  Services Marketing
3 Credits
Offered Fall or Spring
Marketing principles in the service sector with special emphasis on such service industries as banking, healthcare, recreation, retailing and tourism. Includes practices appropriate to domestic or international, small or large, and for-profit organizations.
Prerequisites: BA F343.
Lecture + Lab + Other: 3 + 0 + 0

BA F491  Current Topics in Marketing
3 Credits
Offered Fall or Spring
Examines current marketing trends with regard to production, distribution, promotion, pricing and target markets. Focus on trends in Alaska, the U.S. and worldwide. Course may be repeated for credit when content varies.
Prerequisites: BA F343.
Lecture + Lab + Other: 3 + 0 + 0

BA F692  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

BA F692P  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

BA F698  Research
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

BA F699  Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

Chemistry (CHEM)

CHEM F100X  Chemistry in Complex Systems (n)
4 Credits
Fundamentals of chemistry with an emphasis on the role of chemistry in environmental and life systems. The role of feedback systems on chemical behavior is illustrated in atmospheric, aquatic, nuclear and nutritional systems. For non-science majors.
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F103X  Introduction to General Chemistry (n)
4 Credits
Introductory chemistry survey course for health science majors and preparatory course for science majors. Topics include: measurement, energy and matter, periodic trends, chemical composition, chemical reactions, solutions, bond theory, phases, oxidation-reduction, nuclear chemistry, problem-solving (applied mathematics), and special topics. Special Note: This course fulfills the laboratory part of the natural science requirement and provides preparation for subsequent training in chemistry in CHEM F104X and CHEM F105X.
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F104X  Introduction to Organic Chemistry and Biochemistry (n)
4 Credits
Offered Spring
This is the second semester course in the sequence for health-science majors and comprises a survey of the fundamentals of chemistry as applied to biological systems. Topics include nomenclature of organic compounds, organic functional groups and reactions, biochemical processes and pathways, biological macromolecules, and metabolites.
Prerequisites: CHEM F103X; placement in WRTG F111X; placement in DEVM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F105L  Chemistry F105X Lab
0 Credit
Lecture + Lab + Other: 0 + 0 + 0

CHEM F105X  General Chemistry I (n)
4 Credits
This course is an introduction to general chemistry and explores topics to a much greater depth than preparatory courses. Topics include: measurement, energy and matter, periodic trends, chemical composition, chemical reactions, solutions, bond theory, gases, thermodynamics, problem-solving (applied mathematics), and special topics. Special Note: CHEM F105X-F106X, together with their laboratory components, constitute the standard one year engineering and science major general chemistry course. Students must be enrolled in both CHEM F105X and CHEM F105L to receive full credit.
Prerequisites: Placement in WRTG F111X; placement in MATH F151X; or a B- or better in CHEM F103X; or permission of instructor and department.
Corequisite: CHEM F105L.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F106L  Chemistry F106X Lab
0 Credit
Lecture + Lab + Other: 0 + 0 + 0

CHEM F106X  General Chemistry II (n)
4 Credits
The second semester in the general chemistry sequence. Topics include: kinetics, equilibrium chemistry (including acids and bases, solubility, and complex ion formation), nuclear chemistry, electrochemistry, thermodynamics, and special topics. Special Note: CHEM F105X-F106X, together with their laboratory components, constitute the standard one year engineering and science major general chemistry course. Students must be enrolled in both CHEM F106X and CHEM F106L to receive full credit.
Prerequisites: Grade of C- or better in CHEM F105X; placement in WRTG F111X; placement in MATH F151X; or permission of instructor and department chair.
Corequisites: CHEM F106L.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0
CHEM F111X  Introduction to Environmental Chemistry of the Arctic  (a)
4 Credits
This course introduces students to environmental chemistry through investigating the air, water and soil quality of the Arctic environment as affected by natural and anthropogenic cycling of nutrients and contaminants. The lab component will focus on characterization of natural waters collected around the state. This course is offered on-campus and by distance.
Prerequisites: DEVM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0
CHEM F190  Alaska Statewide High School Science Symposium
2 Credits
Offered Spring
Students employ the scientific method to approach a problem of personal interest. Student work is molded into a research paper delivered orally in a formal scientific presentation for judges with wide-ranging experiences.
Prerequisites: High School student grades 9-12.
Recommended: Research completion, abstract and paper writing/submission, ASHSSS presentation.
Lecture + Lab + Other: 0 + 10 + 0
CHEM F202  Basic Inorganic Chemistry  (n)
3 Credits
Offered Spring
Introduction to coordination theory, crystal field theory, kinetics and mechanisms of substitutions and redox reactions, unit cells and ionic bonding, periodic law, and descriptive chemistry of selected main group elements.
Prerequisites: CHEM F106X.
Lecture + Lab + Other: 2 + 3 + 0
CHEM F212  Chemical Equilibrium and Analysis  (n)
4 Credits
Offered Fall
Aqueous chemical equilibrium as applied to chemical analysis, separations, spectrophotometry, potentiometry and factors considered in the analytical approach. Lab portion will include introductory experiments in analytical and instrumental techniques.
Prerequisites: Grade of C or better in CHEM F106X; MATH F151X.
Lecture + Lab + Other: 3 + 3 + 0
CHEM F288  Introduction to Chemical Research
2 Credits
Offered Spring
Scientific research is creative and engaging when properly planned and executed. This course introduces students to the process of planning and executing a research project. We will begin with an idea, review primary literature, brainstorm project ideas, pose a testable hypothesis, plan experiments and execute a small research project.
Prerequisites: CHEM F212, CHEM F321.
Lecture + Lab + Other: 1 + 3 + 0
CHEM F314  Analytical Instrumental Laboratory  (W, n)
3 Credits
Offered Spring
A laboratory course focusing on the acquisition and interpretation of spectroscopic and chromatographic data for qualitative characterization and quantitative chemical measurements. Students will learn to design and execute experiments with a variety of instruments, critically evaluate experimental data, and communicate their findings through scientific writing.
Prerequisites: CHEM F212; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; must be a chemistry major.
Lecture + Lab + Other: 1 + 6 + 0
CHEM F321  Organic Chemistry I  (n)
4 Credits
Offered Fall
A systematic study of the more important functional groups of carbon compounds, including their mechanisms of reaction, methods of synthesis, and physical and spectroscopic properties. Lab portion will include an introduction to synthetic techniques and spectroscopy.
Prerequisites: CHEM F106X.
Lecture + Lab + Other: 3 + 3 + 0
CHEM F325  Organic Chemistry II  (n)
4 Credits
Offered Fall
A systematic study of the more important functional groups of carbon compounds, including their mechanisms of reaction, methods of synthesis and physical and spectroscopic properties. Lab portion will include synthesis and characterization by spectroscopy.
Prerequisites: CHEM F321.
Lecture + Lab + Other: 3 + 3 + 0
CHEM F331  Physical Chemistry I  (n)
4 Credits
Offered Fall
Principles of thermodynamics and kinetics with applications to phase equilibria, solutions, chemical equilibrium and electrochemistry. Course teaches these concepts using both lecture and laboratory instruction.
Prerequisites: CHEM F106X; MATH F252X; PHYS F104X or PHYS F212X.
Lecture + Lab + Other: 3 + 3 + 0
CHEM F332  Physical Chemistry II  (n)
4 Credits
Offered Spring
Atomic and molecular structure, and spectroscopy, and statistical mechanics. Course teaches these concepts using both lecture and laboratory instruction.
Prerequisites: CHEM F331; MATH F253X.
Lecture + Lab + Other: 3 + 3 + 0
CHEM F351  General Biochemistry: Metabolism
3 Credits
Offered Spring
The biochemistry of metabolism. Topics include: chemistry of amino acids and its implication, protein structure-function, enzyme catalysis, glucose and glycogen metabolism and regulation, bioenergetics, lipid metabolism and biomembranes, amino acid metabolism and regulation of metabolism. Biomedical relevance and contemporary techniques will be addressed if appropriate.
Prerequisites: CHEM F321.
Recommended: CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0
CHEM F360  Cell and Molecular Biology  (n)  
3 Credits  
Offered Fall or Spring  
An introduction to the structure and function of cells. Topics include: the structure and function of cellular components, including proteins, membranes and organelles; understanding how cells communicate; and how information is processed in the cell via DNA replication, transcription and translation.  
**Prerequisites:** BIOL F260; CHEM F105X; CHEM F106X (may be taken concurrently).  
**Cross-listed with** BIOL F360.  
*Lecture + Lab + Other:* 3 + 0 + 0

CHEM F402  Inorganic Chemistry  (n)  
3 Credits  
Offered Fall  
Symmetry and group theory, molecular orbital theory, solid state chemistry, acids and bases, redox reactions, non-aqueous solvents, descriptive chemistry of some main group elements.  
**Prerequisites:** CHEM F202; CHEM F325.  
*Lecture + Lab + Other:* 1 + 6 + 0

CHEM F406  Atmospheric Chemistry  
3 Credits  
Offered Fall Even-numbered Years  
Chemistry of the lower atmosphere (troposphere and stratosphere) including photochemistry, kinetics, thermodynamics, box modeling, biogeochemical cycles and measurement techniques for atmospheric pollutants; study of important impacts to the atmosphere which result from anthropogenic emissions of pollutants, including acid rain, the "greenhouse" effect, urban smog and stratospheric ozone depletion.  
**Prerequisites:** CHEM F332.  
*Stacked with* CHEM F606; ATM F606.  
*Lecture + Lab + Other:* 3 + 0 + 0

CHEM F419  Practical Nuclear Magnetic Resonance  
2 Credits  
Students will be trained in the basic operation of NMR instruments. Students will spend much of the class time getting hands-on experience on the NMR with student-driven NMR-based research projects. At the end of the course, students will present their projects to the rest of the class.  
**Prerequisites:** CHEM F321.  
*Lecture + Lab + Other:* 1 + 3 + 0

CHEM F420  Applications of NMR Spectroscopy  
3 Credits  
Offered Fall Even-numbered Years  
Applications of nuclear magnetic resonance (NMR) spectroscopy in the chemical and biochemical sciences. The course will focus on the implementation and interpretation of NMR experiments for solving research problems. Topics include the basic theory of NMR and one- and two-dimensional techniques.  
**Prerequisites:** CHEM F321.  
*Stacked with* CHEM F620.  
*Lecture + Lab + Other:* 3 + 0 + 0

CHEM F434  Chemistry Capstone Laboratory  (W, n)  
3 Credits  
Offered Fall  
A capstone laboratory course with three major components: 1) experiments related to concepts learned in physical, analytical and inorganic chemistry courses emphasizing kinetics, spectroscopy and thermodynamics; 2) computer use in problem solving, data analysis and word processing; and 3) technical writing with emphasis on preparation of papers for publication.  
**Prerequisites:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; CHEM F212; CHEM F202.  
**Corequisites:** CHEM F332.  
*Lecture + Lab + Other:* 1 + 6 + 0

CHEM F450  Information Storage and Transfer: Molecules and Pathways  
3 Credits  
Offered Fall  
Focuses on the biochemistry of the two principal macromolecules: nucleic acids and proteins. Topics include: nucleotides metabolism, DNA structure and topology, DNA replication, DNA repair and recombination, cell cycle regulation, RNA transcription and processing. Gene expression, translation and protein metabolism. Biomedical relevance and contemporary techniques will be addressed if appropriate.  
**Prerequisites:** CHEM F321.  
*Lecture + Lab + Other:* 3 + 0 + 0

CHEM F455  Environmental Toxicology  (O)  
3 Credits  
Offered Fall Odd-numbered Years  
Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.  
**Prerequisites:** CHEM F351; or one semester each of organic chemistry and cell or molecular biology; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F121X or COJO F131X or COJO F141X.  
*Cross-listed with* BIOL F455.  
*Stacked with* BIOL F656; CHEM F655.  
*Lecture + Lab + Other:* 3 + 0 + 0

CHEM F466  Advanced Cell and Molecular Laboratory  
3 Credits  
Offered Spring  
Modern molecular biological techniques including protein and nucleic acid gel electrophoresis, western blotting, cell fractionation, cellular respiration, enzymology and fluorescence microscopy. Lectures will be supplemented with reading from the primary literature. Student projects in this course may satisfy the capstone project requirements of the biological science degree. Student must also enroll in BIOL F400 to receive capstone credit.  
**Prerequisites:** BIOL F360 or CHEM F360 may be taken concurrently.  
*Cross-listed with* BIOL F466.  
*Lecture + Lab + Other:* 2 + 4 + 0
Chemistry F470  Cellular and Molecular Neuroscience  
3 Credits  
Offered Fall Even-numbered Years  
The goal of this course is to provide an overview of the cellular and molecular underpinnings of signaling in the nervous system. Discussions will be focused on properties of excitable membranes, synaptic transmission, and neurological integration. Fundamentals of the functional properties of neurons will provide the background for discussions of small neuronal circuits that regulate behavior, the cellular/molecular basis of learning and memory, and pharmacological approaches for the treatment of neuronal pathologies.  
Prerequisites: Two F300-level courses in BIOL or CHEM; MATH F251X or MATH F230X.  
Recommended: MATH F252X.  
Stacked with CHEM F670 and BIOL F679.  
Lecture + Lab + Other: 3 + 0 + 0

Chemistry F474  Neurochemistry  
3 Credits  
Offered Fall Odd-numbered Years  
Covers basic and applied aspects of interneuronal signaling of specific neurotransmitter systems. Lectures will be based on chapters from assigned text as well as recent and historical literature relevant to these topics. Basic concepts introduced in lectures will be applied through guided discussion of original research papers. Students will learn to prepare "peer reviews" of selected papers and critically discuss original research.  
Prerequisites: BIOL F115X; CHEM F325; BIOL F417 or CHEM F470 or CHEM F434 or CHEM F314.  
Recommended: MATH F252X.  
Stacked with CHEM F674.  
Lecture + Lab + Other: 3 + 0 + 0

Chemistry F481  Seminar  
1 Credit  
Introduction to the techniques and style of technical oral presentation generally accepted by professional chemists. Class will meet two hours per week, the first hour in closed session, the second, open to the public. Seminar attendance and participation in observing and critiquing presentations by graduate students, chemistry faculty, and their peers is required. Note: Oral communication intensive credit is earned upon successful completion of CHEM F482.  
Prerequisites: BIOL F115X or CHEM F470 or CHEM F481 or CHEM F474 or PSY F335.  
Stacked with CHEM F676.  
Lecture + Lab + Other: 3 + 0 + 0

Chemistry F482  Seminar (O)  
2 Credits  
Introduction to the techniques and style of technical oral presentation generally accepted by professional chemists. Class will meet two hours per week, the first hour in closed session, the second, open to the public. Preparation of a 40 minute presentation to be delivered twice, first, to others in the course in the closed session for critiquing and suggestions for improvement and later, in the open seminar for evaluation by all.  
Prerequisites: CHEM F481; COJO F131X or COJO F141X.  
Lecture + Lab + Other: 2 + 0 + 0

Chemistry F488  Undergraduate Chemistry and Biochemistry Research  
2-3 Credits  
Advanced research topics from outside the usual undergraduate laboratory offerings. The student will be required to make presentations and turn in a final report. Research areas range from atmospheric chemistry to molecular biology. A substantial level of chemistry or biochemistry background is assumed.  
Prerequisites: CHEM F434 or CHEM F314.  
Lecture + Lab + Other: 0 + 6-9 + 0

Chemistry F498  Research  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0

Chemistry F601  Introduction to Atmospheric Sciences  
3 Credits  
Offered Fall  
Fundamentals of atmospheric science. Includes energy and mass conservation, internal energy and entropy, atmospheric water vapor, cloud microphysics, equations of motion, hydrostatics, phase oxidation, heterogeneous chemistry, the ozone layer, fundamentals of biogeochemical cycles, solar and terrestrial radiation and radiative-convective equilibrium. Also includes molecular, cloud and aerosol absorption and scattering.  
Prerequisites: Graduate standing.  
Cross-listed with ATM F601.  
Stacked with ATM F401.  
Lecture + Lab + Other: 3 + 0 + 0

Chemistry F602  Bioinorganic Chemistry  
3 Credits  
Offered Fall Even-numbered Years  
Survey of structure, functions, and chemical properties of natural metalloproteins and metalloenzymes, roles of metalloproteins in nucleic acid formation and replication, metal-based medicines.  
Prerequisites: CHEM F351; or CHEM F450.  
Lecture + Lab + Other: 3 + 0 + 0

Chemistry F605  Aquatic Chemistry  
3 Credits  
Offered Fall Even-numbered Years  
Chemistry of aquatic systems, including the development of equilibrium and kinetic models to understanding the speciation, transformation and partitioning of inorganic chemical species in natural and engineered water systems. Emphasis is on the study of acid-base chemistry, complexation, precipitation-dissolution and reduction-oxidation reactions.  
Prerequisites: Graduate standing.  
Cross-listed with ENVE F641.  
Lecture + Lab + Other: 3 + 0 + 0

Chemistry F606  Atmospheric Chemistry  
3 Credits  
Offered Fall Even-numbered Years  
Chemistry of the lower atmosphere (troposphere and stratosphere) including photochemistry, kinetics, thermodynamics, box modeling, biogeochemical cycles and measurement techniques for atmospheric pollutants; study of important impacts to the atmosphere which result from anthropogenic emissions of pollutants, including acid rain, the "greenhouse" effect, urban smog and stratospheric ozone depletion.  
Prerequisites: ATM F601.  
Cross-listed with ATM F606.  
Stacked with CHEM F406.  
Lecture + Lab + Other: 3 + 0 + 0
CHEM F609  Aquatic and Environmental Geochemistry
3 Credits
Offered Spring Odd-numbered Years
Chemistry of aquatic and terrestrial environments, covering thermodynamic, kinetic and structural principles involved in aqueous geochemical systems; builds on prior physical chemistry courses. Emphasis on aquatic speciation and heterogeneous interactions (dissolution/precipitation, sorption and microbial processes) involved in the partitioning, transformation and transport of chemical species in the environment.
Prerequisites: ENVE F641 or GEOS F618.
Cross-listed with GEOS F633.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F618  Crystallography and Diffraction
3 Credits
Offered Spring Even-numbered Years
The structure of solid-state materials and the analysis of materials using X-ray scattering techniques. Material structure topics will include crystal lattices, space-group symmetry, projections, the reciprocal lattice, and crystal chemistry. Methods for investigating the structure of materials and identification of phase will be covered in depth including: fundamentals of X-ray scattering, diffraction from single crystals, powder diffraction (quantitative) phase analysis, Rietveld refinements, texture analysis, and reactivity. Students will be trained in the use of modern X-ray disciplines including materials chemistry, mineralogy, petrology, and engineering materials with an emphasis on methods of data collection and analysis.
Prerequisite: Graduate standing.
Lecture + Lab + Other: 3 + 2 + 0

CHEM F620  Applications of NMR Spectroscopy
3 Credits
Offered Fall Even-numbered Years
Applications of nuclear magnetic resonance (NMR) spectroscopy in the chemical and biochemical sciences. The course will focus on the implementation and interpretation of NMR experiments for solving research problems. Topics include the basic theory of NMR and one- and two-dimensional techniques.
Prerequisites: Graduate standing.
Stacked with CHEM F420.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F621  Enzymology and Bio-organic Chemistry
3 Credits
Offered Spring Even-numbered Years
Applications of the methods and concepts of physical organic chemistry to enzyme-catalyzed reactions.
Prerequisites: CHEM F351.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F622  Biosynthesis of Plant Natural Products
3 Credits
Offered Fall Even-numbered Years
Three major pathways of plant secondary metabolism: terpene, shikimate and acetogenic pathways. Includes discussion of offshoots of these pathways to various classes of alkaloids. Use of stable and radioisotopes in conjunction with modern NMR spectroscopy and kinetic isotope effects will be stressed.
Prerequisites: CHEM F325.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F623  Molecular Modeling
3 Credits
Offered Spring Even-numbered Years
Theory and practice of quantum and molecular mechanics methods in organic, physical, inorganic and environmental chemistry and biochemistry; applications of computational software on workstations and multi-processor servers.
Prerequisites: Graduate standing in chemistry of biochemistry, one year each of undergraduate organic, physical and analytical chemistry.
Recommended: CHEM F402.
Lecture + Lab + Other: 2 + 0 + 3

CHEM F628  Advanced Immunology
3 Credits
Offered Spring Even-numbered Years
Advanced level of knowledge and understanding of the structural and molecular basis of the innate and adaptive immune responses in terms of a complex system.
Prerequisites: BIOL F465; BIOL F360.
Cross-listed with BIOL F628.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F631  Environmental Fate and Transport
3 Credits
Offered Spring Even-numbered Years
Examination of the physical properties that govern the behavior, fate and transport of contaminants released into the environment. Topics include air-water partitioning and exchange, organic solvent-water partitioning, diffusion, sorption, chemical and biological transformation reactions, and modeling concepts.
Cross-listed with ATM F631.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F632  Molecular Spectroscopy
3 Credits
Offered Fall Odd-numbered Years
Application of quantum mechanics to molecular bonding and spectroscopy. Topics include: applications of lasers to probe chemical reactivity, photochemistry and the detection of trace compounds in mixtures. Variable content. May be repeated for credit.
Prerequisites: CHEM F332.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F654  Protein Structure and Function
3 Credits
Offered Spring Even-numbered Years
Contemporary topics in peptide and protein biochemistry. Topics include peptide synthesis, protein modification, comparative aspects of structure, protein engineering, enzyme and receptor function as well as molecular modeling.
Prerequisite: CHEM F351.
Lecture + Lab + Other: 3 + 0 + 0
CHEM F655  Environmental Toxicology
3 Credits
Offered Fall Odd-numbered Years
Environmental toxicology will focus on the general properties and principles of persistent and/or poisonous (toxic) chemicals commonly encountered in air, water, fish and wildlife. Numerous natural and synthetic chemicals in the environment will be discussed from a global perspective with some bias towards Arctic and sub-Arctic regions.
Prerequisites: CHEM F351; or one semester each of organic chemistry and cell or molecular biology.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F657  Molecular Foundations of Gene Expression
3 Credits
Offered Spring Even-numbered Years
The molecular regulation of gene expression in prokaryotes and eukaryotes in the context of development and disease. Major topics include: protein/DNA interactions, structure-function relations of transcription factors, signal transduction, control of transcription and translation, chromatin structure and DNA replication.
Prerequisites: CHEM F351, CHEM F450.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F658  Current Techniques in Biochemistry
3 Credits
Offered Spring Even-numbered Years
Focuses on current techniques in biochemistry. This is a laboratory intensive course covering: Restriction Enzymes, polymerase chain reaction (PCR), DNA electrophoresis, Enzyme Linked Immunosorbent Assays (ELISA), DNA recombinant cloning, protein purification by affinity chromatography, protein electrophoresis, Western blots, enzyme kinetics, protein quantification by spectrophotometry, and basic tissue culture techniques. It is an important goal of this graduate course to emphasize experimental design, evaluation, and trouble shooting within each of the biochemical techniques and also to challenge students to develop their own experimental designs, evaluate the scope and limitations of the design/technique, and propose solutions for potential problems.
Prerequisite: CHEM F351; CHEM F450.
Lecture + Lab + Other: 1 + 6 + 0

CHEM F660  Chemical Oceanography
3 Credits
Offered Spring
An integrated study of the chemical, biological, geological and physical processes that determine the distribution of chemical variables in the sea. Topics include biogeochemical cycles and the use of tracers to follow these complex chemical cycles. The chemistry of carbon is considered in detail. Interactions with the atmosphere and lithosphere (including implications of the mid-ocean ridge vent system to ocean chemistry) are examined.
Prerequisites: Graduate standing.
Cross-listed with MSL F660.
Stacked with MSL F461.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F666  Scientific Teaching
2 Credits
Offered Spring Even-numbered Years
This course explores methods for teaching science at the university level. Emphasis is placed on methods of course design, instructional techniques, assessment and course management that have been shown by research to improve student learning. This course is intended for graduate students in the sciences who have an interest in improving their teaching skills. The course format will be a mixture of discussion, workshops and seminars. If the course is over-enrolled, priority will be given to teaching assistants who are assigned to teach large, introductory level (100 or 200 level) courses during the semester they are taking this course.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 2 + 0 + 0

CHEM F670  Cellular and Molecular Neuroscience
3 Credits
Offered Fall Even-numbered Years
The goal of this course is to provide an overview of the cellular and molecular underpinnings of signaling in the nervous system. Discussions will be focused on properties of excitable membranes, synaptic transmission, and neurological integration. Fundamentals of the functional properties of neurons will provide the background for discussions of small neuronal circuits that regulate behavior, the cellular/molecular basis of learning and memory, and pharmacological approaches for the treatment of neuronal pathologies.
Prerequisites: Two F300-level courses in BIOL or CHEM; MATH F251X or MATH F230X.
Recommended: MATH F252X.
Cross-listed with BIOL F679.
Stacked with CHEM F470.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F671  Receptor Pharmacology
3 Credits
Offered Fall Even-numbered Years
Covers basic drug/receptor theory to train students to a) assess affinity and efficacy of receptor ligands; b) work with and interpret functional assays and binding results; c) critically evaluate original research regarding receptor pharmacology with an emphasis on ligand-gated ion channels and G-protein coupled receptors; and c) identify testable hypotheses and design experiments to test these hypotheses.
Prerequisites: Upper-division or graduate biochemistry or neurochemistry course.
Recommended: BIOL F417.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F674  Membrane Biochemistry and Biophysics
3 Credits
Offered Fall Even-numbered Years
Basic biophysical and molecular processes associated with membrane-mediated events in the context of cellular physiology. Major topics include biochemical and biophysical characteristics of membrane lipids; structure-function relation of membrane proteins; protein trafficking/targeting; vesicle transport and membrane fusion/exocytosis; the nature of membrane excitability; and the role of membrane in bioenergetics.
Prerequisites: CHEM F351; CHEM F450.
Lecture + Lab + Other: 3 + 0 + 0
CHEM F675  Cellular Signaling
3 Credits
Offered Spring Odd-numbered Years
Cellular signaling is of vital importance in complex biomolecular systems, development, physiology, and pathology and thus, constitutes a major topic in modern medical and pharmacological research. This course concentrates on cellular signal transduction and regulation in higher animals and humans. Major topics include G-proteins, Protein kinases, Ca2, cAMP, lipid mediators, adaptor proteins and signal recognition domains.
Prerequisites: Upper division or graduate biochemistry or neurochemistry course.
Lecture + Lab + Other: 3 + 0 + 0
CHEM F676  Neurochemistry
3 Credits
Offered Fall Odd-numbered Years
Covers basic and applied aspects of interneuronal signaling of specific neurotransmitter systems. Lectures will be based on chapters from assigned text as well as recent and historical literature relevant to these topics. Basic concepts introduced in lectures will be applied through guided discussion of original research papers. Students will learn to prepare “peer reviews” of selected papers and critically discuss original research.
Prerequisites: BIOL F115X; CHEM F325; BIOL F417 or CHEM F470 or PSY F335.
Stacked with CHEM F474.
Lecture + Lab + Other: 3 + 0 + 0
CHEM F686  Chemical Research Mentoring
2 Credits
This course provides graduate students the opportunity to mentor undergraduates in chemical research within a structured environment, from developing a research idea to executing a small research project. The focus of this course is to refine mentoring skills that contribute to the professional development of maturing chemical professionals. Offered Spring
Prerequisites: Graduate standing in a scientific discipline.
Lecture + Lab + Other: 1 + 3 + 0
CHEM F688  Biochemical and Molecular Biology Seminar
1 Credit
A seminar on various topics related to biochemical and molecular biology including discussions of recent literature and research results.
Lecture + Lab + Other: 1 + 0 + 0
CHEM F691  Research Presentation Techniques
1 Credit
Offered Spring
Review of recent research in chemistry to expose students to recent findings, methodologies and concepts in a broad range of chemistry and related disciplines. How to present and defend research proposals. Course may be repeated for credit.
Prerequisites: Graduate standing in physical sciences.
Lecture + Lab + Other: 1 + 0 + 0
CHEM F692  Seminar
1-6 Credits
Graded Pass/Fail.
Lecture + Lab + Other: 1-6 + 0 + 0
CHEM F692P  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0
CHEM F698  Non-thesis Research/Project
1-9 Credits
Graded Pass/Fail.
Lecture + Lab + Other: 0 + 1-9 + 0
CHEM F699  Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

Chinese (CHNS)

CHNS F100A  Chinese Culture and Conversation I
3 Credits
Offered As Demand Warrants
An introductory course in Chinese language and culture with an emphasis on the spoken pronunciation, and contemporary use of the language. This class does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
Lecture + Lab + Other: 3 + 0 + 0
CHNS F100B  Chinese Culture and Conversation II
3 Credits
Offered As Demand Warrants
A continuation of introduction to the Chinese language and culture with an emphasis on the spoken and written language. Course will focus on language skills to include grammar, vocabulary, pronunciation, and contemporary use of the language. This class does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
Prerequisites: CHNS F100A.
Lecture + Lab + Other: 3 + 0 + 0
CHNS F100C  Chinese Culture and Conversation III
3 Credits
Offered As Demand Warrants
This is the first semester course of second-year examination of Chinese culture and conversation (a continuation of CHNS F100B). The student will continue to progress in the basic skills of listening, speaking, reading, and writing by learning more characters/vocabulary and broadened sentence patterns. Grammar and sentence pattern analysis will be presented systematically with respect to the course materials to help students establish a solid foundation for the use of language.
Prerequisites: CHNS F100B.
Lecture + Lab + Other: 3 + 0 + 0
CHNS F100D  Chinese Culture and Conversation IV
3 Credits
Offered As Demand Warrants
The second semester course of second-year examination of Chinese culture and conversation (a continuation of CHNS F100C). The student will continue to progress in the basic skills of listening, speaking, reading, and writing by learning more characters/vocabulary and broadened sentence patterns. Grammar and sentence pattern analysis will be presented systematically with respect to the course materials to help students establish a solid foundation for the use of language.
Prerequisites: CHNS F100C.
Lecture + Lab + Other: 3 + 0 + 0
CHNS F101X  Elementary Chinese I  (h)
5 Credits
Offered Fall
First year spoken and written Chinese. Emphasis on the basic elements of the language to acquire skills in listening, speaking, reading and writing. About 300 characters will be taught. Cultural aspects will be presented.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

CHNS F102X  Elementary Chinese II  (h)
5 Credits
Offered Spring
First year spoken and written Chinese. Emphasis on the basic elements of the language to acquire skills in listening, speaking, reading and writing. Approximately 300 characters will be taught. Cultural aspects are presented.
Prerequisites: CHNS F101X.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

CHNS F201  Intermediate Chinese I  (h)
4 Credits
Offered Fall Even-numbered Years
Continuation of CHNS F102. Continue to gain language skills by learning more characters/vocabulary and broadened sentence patterns. About 200 characters and 700 vocabulary words will be taught.
Prerequisites: CHNS F102.
Lecture + Lab + Other: 4 + 0 + 0

CHNS F202  Intermediate Chinese II  (h)
4 Credits
Offered Spring Odd-numbered Years
Continuation of CHNS F102. Continue to gain language skills by learning more characters/vocabulary and broadened sentence patterns. About 200 characters and 700 vocabulary words will be taught.
Prerequisites: CHNS F201.
Lecture + Lab + Other: 4 + 0 + 0

Civil Engineering (CE)

CE F112  Elementary Surveying
3 Credits
Offered Spring
Basic plane surveying; use of transit, level, theodolite and total station. Traverses, public land system, circular curves, cross-sectioning and earthwork.
Prerequisites: MATH F152X.
Lecture + Lab + Other: 2 + 3 + 0

CE F302  Fundamentals of Transportation Engineering
3 Credits
Offered Spring
Introduces multi-modal transportation systems including highways, airports railroads and water transportation. Factors that influence planning, design and operation of these systems is discussed. Highway systems are emphasized in the course.
Prerequisites: CE junior standing.
Lecture + Lab + Other: 3 + 0 + 0

CE F326  Introduction to Geotechnical Engineering
4 Credits
Offered Spring
Fundamentals of geotechnical engineering including identification and classification of soil, physical and mechanical properties of soil, subsurface exploration, laboratory testing techniques, seepage, compaction, stresses in soil, soil consolidation, and drained and undrained shear strength of soil.
Prerequisites: ES F331; GE F261.
Lecture + Lab + Other: 3 + 3 + 0

CE F331  Structural Analysis
3 Credits
Offered Spring
Introduces techniques for the analysis of statically determinate and indeterminate structures to include beams, trusses and frames. Reviews internal force resultants, shear and moment diagrams, deflections, internal stresses. Discusses indeterminate analysis of structures, including methods of consistent deflections and slope-deflection. Provides and introduction to matrix methods.
Prerequisites: ES F209, ES F331.
Lecture + Lab + Other: 2 + 3 + 0

CE F334  Properties of Materials
3 Credits
Offered Fall
Corequisite: ES F331.
Lecture + Lab + Other: 2 + 3 + 0

CE F341  Environmental Engineering
4 Credits
Offered Spring
Introduces fundamentals of environmental engineering including theory and application of water and wastewater, solid waste and air quality engineering practice; natural processes that influence pollutant fate and use of these processes in engineered systems for pollution control.
Prerequisites: CHEM F106X; or graduate standing.
Lecture + Lab + Other: 3 + 3 + 0

CE F344  Water Resources Engineering
3 Credits
Offered Fall
Fundamentals of engineering hydrology and hydraulic engineering. Water cycle and water balance, precipitation, evaporation, runoff, statistical methods, flood control, open channels and groundwater.
Prerequisites: ES F341.
Lecture + Lab + Other: 3 + 0 + 0

CE F405  Design of Highways and Streets
3 Credits
Offered Fall
Design of geometric elements of streets and highways with emphasis on safety and efficiency. Roadway functional classification, design controls, vertical and horizontal alignments, cross sections, interchanges and intersections.
Corequisite: CE F302.
Lecture + Lab + Other: 2 + 3 + 0
CE F406  Traffic Engineering  
3 Credits  
Operation and control of transportation systems with emphasis on traffic on highways and streets. Traffic control devices, data collection, capacity and level of service analysis, intersection signalization, traffic impact analysis, accident analysis and other safety considerations.  
Prerequisite: CE F302.  
Stacked with CE F606.  
Lecture + Lab + Other: 2 + 3 + 0

CE F422  Foundation Engineering  
3 Credits  
Offered Fall  
Reviews slope stability analysis. Introduces bearing capacity of soils and effects of settlements on structure; discusses design of footings and rafts, pile and pier foundations, retaining walls and anchored bulkheads, foundations on frozen soils, and construction problems in foundation engineering.  
Prerequisites: CE F326; ES F301.  
Lecture + Lab + Other: 3 + 0 + 0

CE F424  Introduction to Permafrost Engineering  
3 Credits  
Offered Fall  
Introduction to permafrost and frozen ground engineering, types of permafrost and ways of its formations, factors important for permafrost existence, hazards related to permafrost, index, thermal, and mechanical properties of frozen and thawing soils, methods of thermal analysis of soil freezing and thawing, foundations design alternatives, pipelines, roads and airfields in the permafrost region.  
Prerequisites: CE F326.  
Recommended: CE F422; GE F384.  
Stacked with CE F624.  
Lecture + Lab + Other: 3 + 0 + 0

CE F432  Steel Design  
3 Credits  
Offered Fall  
Introduces structural design philosophies and current practices related to steel design. Utilizes the AISC Specification to discuss the design of basic structural elements in steel including tension members, fasteners, welds, column buckling, beam behavior, beam-columns, and composite floor systems.  
Prerequisites: CE F331; ES F331.  
Lecture + Lab + Other: 2 + 3 + 0

CE F433  Reinforced Concrete Design  
3 Credits  
Offered Spring  
Introduces structural design philosophies and current practices related to reinforced concrete design. Utilizes the ACI 318 Specification to discuss the behavior of reinforced concrete members and their design including flexural members, such as rectangular, T-beams, and one-way slabs, and axial members. Crack control, anchorage, development lengths and deflections are also covered.  
Prerequisites: CE F331; ES F331.  
Lecture + Lab + Other: 3 + 0 + 0

CE F434  Timber Design  
3 Credits  
Offered Fall Odd-numbered Years  
Prerequisites: CE F331; ES F331.  
Lecture + Lab + Other: 3 + 0 + 0

CE F435  Design and Construction of Bridges  
3 Credits  
Offered Spring  
Design-build technology for bridge structures is introduced. A bridge system is developed for a given crossing with predetermined specifications. Alternate designs are developed. These alternatives are based on design calculations, prepared drawings and suitability. Design ideas are developed and tested to verify if the idea meets the design assumptions. Techniques in design, fabrication, fund raising, project management, fiscal responsibility, safety, public speaking and teamwork are learned and used during the semester. The final structure will be load tested and graded based on the meeting of the goal of the specifications.  
Prerequisites: Permission of instructor.  
Recommended: CE F432.  
Lecture + Lab + Other: 1 + 6 + 0

CE F437  Design of Engineered Systems I  
3 Credits  
Offered Fall  
Critical skills for a successful engineer with emphasis on: project planning; preliminary investigations; permitting; reading, interpreting, and creating plans and specification; use and technical applications of AutoCAD; proposal writing and project management; continuing education and professional registration. Civil engineering major with senior standing; COJO F131X or COJO F141X; WRTG F111X or WRTG F211X or WRTG F212X or WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0

CE F438  Design of Engineered Systems II  
3 Credits  
Offered Spring  
System design principles using service learning projects with civil and environmental engineering focus. Practical applications of concepts covered in CE F437: ethics, liability and legal principles to professional practice. Emphasis on teamwork and leadership.  
Prerequisites: COJO F313X or COJO F414X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; CE F405 or CE F422 or CE F432 or CE F433 or CE F434 or CE F442 or CE F443; CE F437.  
Lecture + Lab + Other: 3 + 0 + 0

CE F442  Environmental Engineering Design  
3 Credits  
Offered Fall  
Practices design methods for pollution control and remediation systems. Applies theories and principles for the design of engineering systems for environmental protection, management and control, water and wastewater treatment and solid waste management.  
Prerequisites: CE F341.  
Lecture + Lab + Other: 3 + 0 + 0
CE F443 Air Pollution Management  
3 Credits  
Offered Spring Odd-numbered Years  
Air pollution topics including the quantity and quality of atmospheric emissions and their effects on the human environment. Identification and location of sources, measurement of quality and conformance with standards. Legal considerations of Clean Air Act and Amendments and local regulations. Evaluation of stationary and moving sources. Meteorology and modeling requirements. Control mechanisms for gases and particulates.  
Prerequisites: CHEM 106X; graduate standing.  
Recommended: MATH F252X.  
Stacked with ENVE F643.  
Lecture + Lab + Other: 3 + 0 + 0

CE F445 Hydrologic Analysis and Design  
3 Credits  
Offered Spring  
Design and analysis; extended coverage of hydrologic concepts from CE F344. Precipitation, snow cover and evaporation analysis; groundwater hydraulics; runoff analysis and prediction; statistical hydrology; application of simulation models. Design of structures such as culverts, reservoirs, wells, pumps and pipe networks.  
Prerequisites: CE F344.  
Lecture + Lab + Other: 2 + 3 + 0

CE F451 Construction Cost Estimating and Bid Preparation  
3 Credits  
Offered Fall  
Compilation and analysis of the many items that influence and contribute to the cost of projects to be constructed. Preparation of cost proposals and study of bidding procedures.  
Recommended: College math.  
Lecture + Lab + Other: 3 + 0 + 0

CE F463 Groundwater Dynamics  
3 Credits  
Offered Fall Even-numbered Years  
Fundamentals of geohydrology, hydraulics of flow through porous media, well hydraulics, groundwater pollution and groundwater resources development.  
Corequisites: CE F344.  
Stacked with CE F663.  
Lecture + Lab + Other: 3 + 0 + 0

CE F470 Civil Engineering Internship  
1 Credit  
Supervised engineering field and work experience. Assignments individually arranged with cooperating agencies and must include data collection and reporting. As part of the requirements for earning credit, the student must have a letter of release from the company, prepare a written report and make an oral presentation. Program must be approved in advance by the department. This course is graded Pass/Fail.  
Prerequisites: Upper division standing; permission of department coordinator.  
Lecture + Lab + Other: 0 + 3 + 0

CE F471 Field Practicum  
1 Credit  
Offered Fall  
Introduction to field data collection techniques used in civil engineering sub-disciplines such as structural, traffic, water, environmental and materials; preliminary data analysis and descriptive statistics.  
Prerequisites: Senior standing in CEE program.  
Lecture + Lab + Other: 0 + 3 + 0

CE F490 Civil Engineering Seminar  
0.5 Credit  
Offered Fall  
CE F490-F491, together, constitute the standard one-year engineering seminar. The class is designed to provide the student with exposure to the latest information available from researchers and practicing professionals in industry.  
Prerequisites: Senior standing.  
Lecture + Lab + Other: 0.5 + 0 + 0

CE F491 Civil Engineering Seminar  
0.5 Credit  
Offered Spring  
CE F490-F491, together, constitute the standard one-year engineering seminar. The class is designed to provide the student with exposure to the latest information available from researchers and practicing professionals in industry.  
Prerequisites: Senior standing.  
Lecture + Lab + Other: 0.5 + 0 + 0

CE F492 Seminar  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0

CE F492P Seminar  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0

CE F601 Engineering Research Communication  
3 Credits  
Offered Spring  
Oral and written communication techniques to describe results on current issues in environmental science and engineering.  
Prerequisites: Graduate Standing.  
Lecture + Lab + Other: 3 + 0 + 0

CE F603 Arctic Engineering  
3 Credits  
(a)  
Introduces students to a broad spectrum of engineering challenges unique to cold regions. Discusses physical principles and practical data collection methods, analyses, designs and construction methods. Students gain a working knowledge of cold regions engineering problems and modern solutions as a basis for more detailed study.  
Lecture + Lab + Other: 3 + 0 + 0

CE F605 Pavement Design  
3 Credits  
Offered As Demand Warrants  
Provides instruction on the current practices of analysis and design of highway and airport pavements. The instruction includes theoretical and practical approaches for the design of flexible and rigid pavements. Materials characterization, load considerations, empirical and mechanistic design methods as well as rehabilitation are covered.  
Lecture + Lab + Other: 3 + 0 + 0

CE F606 Traffic Engineering  
3 Credits  
Operation and control of transportation systems with emphasis on traffic on highways and streets. Traffic control devices, data collection, capacity and level of service analysis, intersection signalization, traffic impact analysis, accident analysis and other safety considerations.  
Prerequisite: CE F302.  
Stacked with CE F406.  
Lecture + Lab + Other: 2 + 3 + 0
CE F607  GIS Applications in Civil Engineering
3 Credits
Offered Fall As Demand Warrants
Theories and advanced methods of Geographic Information Systems for civil engineering practice. Students will apply and execute concepts related to data integration, analysis and management in the ArcGIS suite during labs.
Prerequisites: Graduate standing in CE.
Lecture + Lab + Other: 2 + 3 + 0

CE F620  Construction Project Management
3 Credits
Offered As Demand Warrants
Construction equipment, methods, planning and scheduling, construction contracts, management and accounting, construction estimates, costs, and project control.
Recommended: ESM F450 or equivalent.
Lecture + Lab + Other: 3 + 0 + 0

CE F622  Foundations and Retaining Structures
3 Credits
Offered As Demand Warrants
Advanced study of shallow and deep foundations; analyses and design of retaining walls, free-standing sheet-pile walls, braced excavations, slurry walls, tied-back retention systems, reinforced earth, frozen soil walls, anchored bulkheads, and cellular cofferdams.
Prerequisites: CE F422.
Lecture + Lab + Other: 3 + 0 + 0

CE F624  Introduction to Permafrost Engineering (a)
3 Credits
Offered Fall
Introduction to permafrost and frozen ground engineering, types of permafrost and ways of its formations, factors important for permafrost existence, hazards related to permafrost, index, thermal, and mechanical properties of frozen and thawing soils, methods of thermal analysis of soil freezing and thawing, foundations design alternatives, pipelines, roads and airfields in the permafrost region.
Prerequisites: Training or experience in soil mechanics.
Stacked with CE F424.
Lecture + Lab + Other: 3 + 0 + 0

CE F625  Soil Stabilization and Embankment Design
3 Credits
Offered As Demand Warrants
Soil and site improvement using deep and shallow compaction, additives, pre-loading, vertical and horizontal drains, electro-osmosis and soil reinforcement, dewatering and stabilization; embankment design, earth pressure theories and pressure in embankment, embankment stability, embankment construction, control and instrumentation.
Prerequisites: CE F422.
Lecture + Lab + Other: 3 + 0 + 0

CE F626  Thermal Geotechnics
3 Credits
Offered As Demand Warrants
Prerequisites: CE F326; CE F422.
Cross-listed with GE F626.
Lecture + Lab + Other: 3 + 0 + 0

CE F627  Geotechnical Earthquake Engineering
3 Credits
Offered As Demand Warrants
Introduction to soil dynamics and geotechnical aspects of earthquakes; influences of soils on ground motion, determination of soil response under strong seismic motion, causes of soil failures, soil liquefaction, lateral spreading, the seismic response of earth structures, and seismic-deformation procedures for slopes.
Prerequisites: CE F326.
Lecture + Lab + Other: 3 + 0 + 0

CE F628  Unsaturated Soils Mechanics
3 Credits
Offered As Demand Warrants
Fundamentals of soil behavior under load; pore pressure during monotonic loading; Ladd's "Simple Clay" model; densification and drained cyclic loading of sand; undrained cyclic loading of soil.
Prerequisites: CE F326.
Lecture + Lab + Other: 3 + 0 + 0

CE F630  Advanced Structural Mechanics
3 Credits
Offered As Demand Warrants
Shear and torsion, nonsymmetrical bending, shear center, curved beams, introduction to composite material mechanics, application in bridge engineering.
Prerequisites: Math F302; ES F331.
Recommended: Graduate standing in engineering.
Lecture + Lab + Other: 3 + 0 + 0

CE F631  Advanced Structural Analysis
3 Credits
Offered Spring Odd-numbered Years
Derivation of the basic equations governing linear structural systems. Application of stiffness and flexibility methods to trusses and frames. Solution techniques utilizing digital computers. Planar structures and space structures (trusses and frames) will be covered. Both exact and approximate solution techniques will be reviewed.
Prerequisites: CE F331.
Lecture + Lab + Other: 3 + 0 + 0

CE F633  Theory of Elastic Stability
3 Credits
Offered Spring Odd-numbered Years
The theory and implementation of the buckling of slender elements will be covered. Both lateral and local buckling concepts will be discussed. Emphasis will be placed on developing the ability to evaluate if a member is likely to buckle. The course will cover elastic and inelastic buckling of columns. Other topics include lateral torsional buckling of beams, potential buckling of beam-columns and rigid frame members and the buckling of non standard shapes.
Prerequisites: CE F331; CE F432; MATH F302.
Lecture + Lab + Other: 3 + 0 + 0
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered As Demand Warrants</th>
<th>Prerequisites</th>
<th>Lecture + Lab + Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE F634</td>
<td>Structural Dynamics</td>
<td>3</td>
<td></td>
<td>Offered As Demand Warrants&lt;br&gt;This course covers the theory of structural dynamics. Subjects include equations of motion for un-damped single and multiple degree of freedom systems. Free vibration and response to harmonic and periodic excitations will be studied. Response to arbitrary, step and pulse type excitations are studied in preparation for a study of earthquake type loading. The basic concepts related to the interaction of a structure to an earthquake event will be discussed.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>CE F635</td>
<td>Numerical Methods for Geomechanics and Soil-Structure Interaction</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>Applications of numerical methods for problems involving seepage, consolidation, foundation on expansive soils and pile installation. Finite difference and element methods, non-linear analysis techniques, elasto-plastic formulation with a tangent stiffness approach, seepage analysis, flow-deformation, coupled analysis, models for soil-structure interaction, solution accuracy and reliability.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>CE F637</td>
<td>Earthquakes: Seismic Response of Structures</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>Fundamentals of structural earthquake engineering: strong ground motion phenomena; dynamic analysis of structural systems for seismic motion; response spectrum and time history methods, design of structural systems for lateral forces; shearwalls and diaphragms; moment-resistive frames, braced frames; current design criteria and practice; connection details, serviceability requirement; story drift, non-structural building elements; soil-structure interaction.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>CE F640</td>
<td>Prestressed Concrete</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>Theory and practice of prestressed concrete design. Pre-tensioning and post-tensioning. Anchorage of steel. Materials, design specifications. Application in bridges, tanks and slabs.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>CE F646</td>
<td>Structural Composites</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>The basics of the structural composite theory. Basic design procedures related to structural composite members and the structural analysis of members made of various materials to create laminates or sandwich panels will be covered.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>CE F650</td>
<td>Bridge Engineering</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>Covers structural systems, loading and analysis by influence lines. Slab and girder bridges considering composite design, prestressed and concrete bridges and how these bridges are designed and rated using AASHTO specifications.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>CE F652C</td>
<td>Pre-Construction Contracts</td>
<td>1</td>
<td>Offered As Demand Warrants</td>
<td>Provides an introduction to determining scope and scheduling needs for architectural and engineering contracts and other design-related contracts. A review of type of contracts and procurement methods available. Handling changes within the pre-construction contract.</td>
<td>4.5 + 0 + 0</td>
</tr>
<tr>
<td>CE F659A</td>
<td>Mentoring</td>
<td>1</td>
<td>Offered As Demand Warrants</td>
<td>This course will provide insight into how to &quot;train the trainer.&quot; It will incorporate the role of HR in department and relevant case studies to enable students to understand key principles, and learn skills and behaviors to enhance knowledge transfer.</td>
<td>4.5 + 0 + 0</td>
</tr>
<tr>
<td>CE F660A</td>
<td>Project Management Boot Camp</td>
<td>1</td>
<td>Offered As Demand Warrants</td>
<td>This course provides &quot;basic training&quot; in project management fundamentals, with emphasis on the management of engineering and construction projects. Much of the discussion is centered on the &quot;triple constraint&quot; of cost, schedule, and quality/scope. Topics include project characteristics; the project life cycle; project organizations, teams and leadership; planning, monitoring and controlling each element of the triple constraint; and project termination and phase-out. Planning issues include the project charter and scope statement, the work breakdown structure, and both network- and non-network-based scheduling techniques.</td>
<td>4.5 + 0 + 0</td>
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<tr>
<td>CE F661</td>
<td>Advanced Water Resources Engineering</td>
<td>3</td>
<td>Offered Spring Odd-numbered Years</td>
<td>Engineering hydraulics and hydrology including use of standard computer models to solve water resource engineering problems.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>CE F662</td>
<td>Open Channel and River Engineering</td>
<td>3</td>
<td>Offered Spring Even-numbered Years</td>
<td>Principles of open channel flow, specific energy, hydraulic jump, transitions and controls, uniform and non-uniform flows, steady and unsteady flows, numerical solution for unsteady flows. River engineering, stream channel mechanics, and mechanics of sedimentation.</td>
<td>3 + 0 + 0</td>
</tr>
</tbody>
</table>
CE F663  Groundwater Dynamics  
3 Credits  
Offered Fall Even-numbered Years  
Fundamentals of geohydrology, hydraulics of flow through porous media, well hydraulics, groundwater pollution and groundwater resources development.  
Corequisites: CE F344.  
Stacked with CE F463.  
Lecture + Lab + Other: 3 + 0 + 0

CE F664  Sediment Transport  
3 Credits  
Offered Spring Even-numbered Years  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

CE F665  Introduction to Watershed Hydrology  
3 Credits  
A broad view of the water cycle at the watershed scale and introduction to the quantitative relations between components of the water cycle. Emphasis is placed on precipitation, evaporation, water in soils and stream response to water-input events. Offered Fall Even-numbered Years  
Prerequisites: MATH F253X, PHYS F211X.  
Lecture + Lab + Other: 3 + 0 + 0

CE F682  Ice Engineering  
3 Credits  
Offered Spring Odd-numbered Years  
The factors governing design of marine structures, which must contend with the presence of ice. Topics include ice growth, ice structure, mechanical properties and their dependence on temperature and structure, creep and fracture, mechanics of ice sheets, forces on structures, and experimental methods.  
Prerequisites: ES F331, MATH F253X, training or experience in soil mechanics.  
Lecture + Lab + Other: 3 + 0 + 0

CE F683  Arctic Hydrology and Hydraulic Engineering  
3 Credits  
Offered Fall Odd-numbered Years  
Aspects of hydrology and hydraulics unique to engineering problems of the north. Although the emphasis will be on Alaskan conditions, information from Canada and other circumpolar countries will be included in the course.  
Prerequisites: CE F344.  
Lecture + Lab + Other: 3 + 0 + 0

CE F684  Arctic Utility Distribution  
3 Credits  
Offered As Demand Warrants  
Practices and considerations of utility distribution in Arctic regions. Emphasis on proper design to include freeze protection, materials, energy conservation and system selection.  
Prerequisites: ES F341.  
Lecture + Lab + Other: 3 + 0 + 0

CE F685  Topics in Frozen Ground Engineering  
3 Credits  
Offered As Demand Warrants  
Selected frozen ground foundation engineering problems will be explored in depth including refrigerated foundations and pile foundations.  
Prerequisites: CE F424 or CE F624.  
Lecture + Lab + Other: 3 + 0 + 0

CE F692  Seminar  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0

CE F698  Non-Thesis Research/Project  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

CE F699  Thesis  
1-15 Credits  
Lecture + Lab + Other: 0 + 0 + 0

Communication and Journalism (COJO)

COJO F101X  Media and Culture  
3 Credits  
History and principles of mass communications and the role of information media in American society. Introduction to professional aspects of mass communications, including print and broadcast.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 3 + 0 + 0

COJO F102X  Introduction to Broadcasting  
3 Credits  
Offered Spring  
Principles of broadcasting as they relate to the people of the United States, including history, government involvement and social effects.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 3 + 0 + 0

COJO F105X  History of the Cinema  
3 Credits  
History and development of the medium of film in the United States and abroad during the last 100 years. Content will vary each semester.  
Cross-listed with FLPA F105X.  
Attributes: UAF GER Arts Req  
Lecture + Lab + Other: 3 + 0 + 0

COJO F121X  Introduction to Interpersonal Communication  
3 Credits  
This course features the fundamental principles of effective oral communication, emphasizing interpersonal communication as well as public speaking. Through role playing, speeches and evaluations of other speakers, students explore the complexities of communication in today’s society.  
Attributes: UAF GER Oral Communication  
Lecture + Lab + Other: 3 + 0 + 0
COJO F131X  Fundamentals of Oral Communication: Group Context
3 Credits
Presentational speaking skills: individual and group. Includes verbal and nonverbal skills, critical thinking in selecting and organizing materials, audience analysis and speaking presentation. Group skills include task and relational interaction, required interdependence, working across cultural differences, group decision-making and shared logistics of presentation. Student evaluations are based on nationally normed speaking competencies.
Attributes: UAF GER Oral Communication
Lecture + Lab + Other: 3 + 0 + 0

COJO F141X  Fundamentals of Oral Communication: Public Context
3 Credits
Speaking skills for individual presentation. Includes verbal and nonverbal skills, critical thinking in selecting and organizing materials, audience analysis, informative and persuasive speaking, and actual presentations. Student evaluations are based on nationally normed speaking competencies.
Attributes: UAF GER Oral Communication
Lecture + Lab + Other: 3 + 0 + 0

COJO F201  Dispute Resolution and Restorative Practices  
3 Credits
This course surveys the basic practical and theoretical foundations of conflict, conflict resolution and restorative practices. It introduces students to the basic theories and practices of conflict resolution and peace-making, providing students with grounding in theories, applications and dynamics of conflict and key conflict resolution processes.
Prerequisites: WRTG F111X; COJO F131X or COJO F141X; PS F100X or ECON F100X or JUST F110X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F202  News Writing for the Media  (h)
3 Credits
Identifying and focusing news stories, writing the lead, developing story structure, writing on deadline, editing copy, writing headlines and captions, writing styles for print, broadcast and online news presentations.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F203  Basic Darkroom Photography  (h)
3 Credits
Photography fundamentals, including use of an adjustable camera, film and exposure techniques, filters and flash techniques, and an introduction to color. Darkroom procedures including black and white film processing and printing, photograph design and composition. Students must have use of an adjustable camera.
Cross-listed with ART F283.
Lecture + Lab + Other: 2 + 3 + 0

COJO F204  Basic Digital Photography  (h)
3 Credits
Introduction to the technical and aesthetic aspects of basic digital photography via digital SLR cameras and editing through digital photo suites such as Adobe Photoshop. Students are expected to have intermediate computer knowledge. Topics include controlling digital SLRs on manual settings, photographing creatively, basic and advanced editing techniques, negative scanning and digital printing.
Cross-listed with ART F284.
Lecture + Lab + Other: 3 + 0 + 0

COJO F210  Argumentation and Critical Thinking
3 Credits
Offered Spring
Introduction to argumentation, emphasizing the process of constructing and evaluating sound arguments based on reasoning, evidence, and strategy.
Prerequisite: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F215  Radio Production
3 Credits
Offered Fall
Sound production techniques for radio and television. Emphasis on writing, recording, control room techniques and editing.
Lecture + Lab + Other: 2 + 3 + 0

COJO F217X  Introduction to the Study of Film  (h)
3 Credits
Offered Spring
An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects.
Prerequisites: WRTG F111X.
Cross-listed with ENGL F217X; FLPA F217X.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 2 + 2 + 0

COJO F220  Professional Interviewing
3 Credits
Offered As Demand Warrants
The theory and practice of methods in selected interview settings: emphasis on interpersonal communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F240  Foreign Corresponding  (h)
3 Credits
Offered Spring
The U.S. tradition of “objective” journalism holds sway in very few countries. How did these varying approaches develop, and what do they mean for how Americans report overseas and how foreign journalists report about us?
Lecture + Lab + Other: 3 + 0 + 0

COJO F250  Website Design
3 Credits
Offered Fall
Create website projects. Includes the Internet, design, multimedia and the incorporation of text, sound, images, animation and video.
Prerequisites: Familiarity with the World Wide Web, Internet browsers, the Macintosh operating systems, and image editing software.
Lecture + Lab + Other: 3 + 0 + 0

COJO F251  Introduction to Video Production
4 Credits
Offered Fall
An introduction to video production with an emphasis on television studio production.
Cross-listed with FLPA F251.
Lecture + Lab + Other: 2 + 5 + 0
COJO F280  Video Storytelling  (h)  3 Credits
Offered Fall
Basics of digital video production technology, composition, audio, lighting and editing as it relates to primarily nonfiction filmmaking. Students will conclude the course by producing their own short videos.
Cross-listed with FLPA F260.
Lecture + Lab + Other: 3 + 0 + 0

COJO F290  Digital Video Editing  3 Credits
Offered As Demand Warrants
Introduction to the technical and aesthetic aspects of non-linear digital video editing. Students will go from little or no experience in non-linear editing to being comfortable with some of the advanced editing techniques. Address motion picture editing theories that are not bound to time or specific editing technology.
Cross-listed with FLPA F260.
Lecture + Lab + Other: 3 + 0 + 0

COJO F300X  Communicating Ethics  (h)  3 Credits
An examination of ethical choices which are communicated in everyday encounters. Examines human moral development from a variety of perspectives, including feminist interpretations. Creation and communication of human values explored through the discussion of a series of contemporary dilemmas.
Prerequisites: Junior standing; placement in WRTG F111X.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

COJO F302  Dispute Systems Design  (s)  3 Credits
Offered Summer and Fall
This course examines the hidden sources of conflicts that are often embedded in social, legal, political, and organizational structures and systems. This course will be focused on all aspects of structural, systemic conflict, and introduces ways to harness conflict for positive organizational outcomes.
Prerequisites: JUST F201; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F303  Internship  1-3 Credits
Practical experience working with campus media, individual media-related projects for business or media, or in a professional media environment.
Prerequisites: COJO F202.
Lecture + Lab + Other: 1 + 6 + 0

COJO F305  Sneden Chair Lectures  3 Credits
Offered Fall
Rotating series of lectures and seminars with America’s leading journalists on topics ranging from war reporting to covering sports. Please contact Department of Communication and Journalism for current topic and instructor. Course may be repeated for credit.
Prerequisites: Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

COJO F308  Film Criticism  (h)  3 Credits
Theoretical approaches to viewing, analyzing and evaluating film and television program content.
Cross-listed with FLPA F308.
Lecture + Lab + Other: 3 + 0 + 0

COJO F310  Reporting  (W)  3 Credits
Offered Spring
News reporting basics: covering beats, including police, sports, local government, science and the military. Cultivating sources, interviewing and reporting through public records. Working with numbers, segments on print, video and online reporting methods and style conventions.
Prerequisites: COJO F101X; COJO F202; COJO F251; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F311  Magazine Article Writing  (W, h)  3 Credits
Offered Fall
Learn to identify great article ideas, turn them into finished products and pitch them to magazine editors. Workshops and extensive instructor feedback. Students repeating the course limited to six credits.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F202.
Lecture + Lab + Other: 3 + 0 + 0

COJO F320  Communication and Language  (s)  3 Credits
Examination of the nature of language and its place in human communication, with special attention to the creation of meaning in conversation.
Prerequisites: Any lower-division communication course.
Lecture + Lab + Other: 3 + 0 + 0

COJO F321  Nonverbal Communication  (W, s)  3 Credits
Non-lexical behavior in human communication, including consideration of space, physical environment, physical appearance and dress, kinesics, facial expression and non-lexical vocal behavior.
Prerequisites: Any lower-division communication course; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F322  Communication in Interpersonal Relationships  (W, s)  3 Credits
An examination of communication in the most basic human context, the relational dyad. Emphasis on the ongoing co-construction of the relationship as communicative action. Discussion of interpersonal relationships generally, and extensive discussion of communication in the patterns of coming together, relationship maintenance, relational and personal growth in relationships, relational conflict, and relational disengagement. Theoretical and practical perspectives.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F323  Editing for Journalists  3 Credits
Offered Spring
Tricks of the trade, including copyediting; writing headlines and captions; basic page design using computers; and thinking like the editor-in-chief.
Prerequisites: COJO F202; junior standing.
Lecture + Lab + Other: 3 + 0 + 0
COJO F330  Intercultural Communication  (s)
3 Credits
Offered Spring
The nature and sources of problems in communication that may arise when persons with different cultural backgrounds interact. Emphasis on problems in intercultural communication in Alaska.
Prerequisites: Any lower-division communication course.
Lecture + Lab + Other: 3 + 0 + 0

COJO F331  Advanced Group Communication  (O, s)
3 Credits
Current research and theory in intergroup and intragroup relations. Topics include the study of leadership, power, group structure, participation, and conflict.
Prerequisites: COJO F131X or COJO F141X; any lower-division communication course.
Lecture + Lab + Other: 3 + 0 + 0

COJO F335  Organizational Communication  (O, s)
3 Credits
Examines current theoretical and methodological approaches underlying the construction of organizations via the communication process. Includes functional (message flow, load and network analysis) as well as interpretive (metaphors, narratives and organizational culture) approaches to the study of organizational communication.
Prerequisites: COJO F131X or COJO F141X; any lower-division communication course.
Lecture + Lab + Other: 3 + 0 + 0

COJO F352  Family Communication  (s)
3 Credits
Exploration of the functions of communication in marriage and the family, sequences and patterns of family communication, family communication as a continual process of coping with dialectical tensions, and the complexity of changing family life in Western societies.
Prerequisites: Any lower-division communication course.
Recommended: COJO F322.
Lecture + Lab + Other: 3 + 0 + 0

COJO F353  Conflict, Mediation and Communication  (O, h)
3 Credits
Examines conflict as a complex communication event, together with the role of the mediator in building constructive outcomes in conflicts. Emphasis on developing skills to engage in mediation.
Prerequisites: Any F100-level communication course.
Lecture + Lab + Other: 3 + 0 + 0

COJO F368  Topics in American Film History  (s)
3 Credits
Offered As Demand Warrants
American film and how it shapes and warps popular perceptions of America's past. A historical contrast according to Hollywood with the views and interpretations of historians. Content will vary depending on the specific genre or period of focus, such as World War II, the Vietnam War, the Great Depression, the Cold War and development of the West, etc. Course may be repeated for credit when content varies.
Prerequisites: HIST F131 or HIST F132X; COJO F217X or COJO F308.
Cross-listed with HIST F368; FLPA F368.
Lecture + Lab + Other: 3 + 0 + 0

COJO F371  Digital Imaging  (O, h)
3 Credits
This course focuses on creating and manipulating digital images, including digital painting and photography. The varied ethical issues engendered by this expertise will be addressed in depth. Skills and knowledge useful for digital photography, digital video compositing and digital painting will be covered.
Prerequisites: ART F161 or ART F271 or ART F284 or COJO F204 or FLPA F260 or COJO F290; COJO F131X or COJO F141X.
Cross-listed with ART F371; FLPA F371.
Lecture + Lab + Other: 1 + 4 + 0

COJO F380  Women, Minorities and the Media  (O, h)
3 Credits
Offered As Demand Warrants
Basic socialization differences that exist in the communication practices of women and men in every culture are addressed in the interpersonal, organizational and cultural contexts. Examination of how women and minorities are portrayed in the mass media, the employment of women and minorities in the media, as well as how accurately the media reflects our society demographically. Presented from a feminist, multiculturalist perspective using a broad feminist analysis encompassing issues of gender as well as class, race, age and sexual orientation.
Prerequisites: COJO F131X or COJO F141X; junior standing.
Cross-listed with WGS F380.
Lecture + Lab + Other: 3 + 0 + 0

COJO F390  Social Media Toolkit  (h)
3 Credits
Offered As Demand Warrants
Focus on content production and distribution through social media, including emerging news apps and platforms. Students will explore blogging, podcasting, digital photography, mobile video and package production. The changing journalism landscape will also be discussed.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F202.
Lecture + Lab + Other: 2.5 + 0.5 + 0

COJO F400  Professional Internship  1-3 Credits
Practical training in a supervised, professional media environment. Participation at an approved publication, TV or radio station, or other media- or communication-related office agency, organization or business is required.
Prerequisites: Senior standing.
Lecture + Lab + Other: 1 + 6 + 0

COJO F401  Communication Research Methods  (s)
3 Credits
Offered Fall
Quantitative research methodologies employed in the conduct of research on communication phenomena.
Prerequisites: Any F300-level communication course; senior standing.
Lecture + Lab + Other: 3 + 0 + 0

COJO F402  Advanced Photography  (h)
3 Credits
Offered Spring
Continuation of COJO F203/ART F283. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography.
Prerequisites: COJO F203 or ART F283.
Cross-listed with ART F483.
Lecture + Lab + Other: 2 + 3 + 0
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered Period</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Lecture + Lab + Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>COJO F403</td>
<td>Beat Reporting</td>
<td>3</td>
<td>Fall</td>
<td>Intensive training in developing and covering a news beat (chosen by the student) and the basics of common news beats: police, courts and government. Includes cultivating sources, explaining complicated stories, reporting trends, improving interviewing techniques, and employing advanced writing skills. Writing for publication encouraged.</td>
<td>Prerequisites: COJO F202.</td>
<td>2 + 2 + 0</td>
</tr>
<tr>
<td>COJO F404</td>
<td>Photojournalism</td>
<td>(h)</td>
<td>Fall</td>
<td>Fundamentals of visual communication through photography; issues and techniques of modern photojournalism; news, features, sports, and photo essay assignments as encountered at a daily newspaper; preparation of photographs for publication. Students must have basic 35mm camera equipment.</td>
<td>Prerequisites: COJO F204 or ART F284.</td>
<td>2 + 3 + 0</td>
</tr>
<tr>
<td>COJO F405</td>
<td>Advanced Photography Seminar</td>
<td>3</td>
<td>Spring Odd-numbered Years</td>
<td>Advanced discussion of photojournalism and photographic topics. Topics range from the photographic essay to the history of photography and working in series. Weekly classroom meetings supplemented by field, studio and darkroom sessions.</td>
<td>Prerequisites: COJO F402; COJO F404.</td>
<td>2 + 3 + 0</td>
</tr>
<tr>
<td>COJO F407</td>
<td>Digital Darkroom</td>
<td>3</td>
<td>Fall</td>
<td>Learn to make ink jet prints from various photographic sources, including digital capture and scanned film. Emphasis on applying Photoshop methods for making fine prints in black and white and color.</td>
<td>Prerequisites: COJO F204 or ART F284.</td>
<td>2.5 + 2 + 0</td>
</tr>
<tr>
<td>COJO F408</td>
<td>Media Management</td>
<td>3</td>
<td>Fall</td>
<td>Overview of media management, including management theories, media competition, media research, regulatory issues of concern to managers, organizational planning and future trends in media. Case studies in practical problem-solving techniques.</td>
<td>Prerequisites: Junior standing.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>COJO F411</td>
<td>Writing for a Living</td>
<td>(W)</td>
<td>Fall</td>
<td>Writing advanced prose for publication in books or magazines. May be repeated for credit with permission of instructor.</td>
<td>Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F311.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>COJO F412</td>
<td>Portrait Photography</td>
<td>3</td>
<td>Fall</td>
<td>This course will teach the student who has basic or advanced exposure and printing skills to further their understanding of the principles and techniques of portrait photography. Students will work with SLR or DSLR cameras and editing through a digital photo suite such as Adobe Photoshop. Students will learn to perfect their exposures and portrait skills, work with models, and handle studio strobes and equipment using traditional and digital media. Assignments will focus on both technical and aesthetic concerns. In-class critiques will provide feedback on students' work and weekly slide shows will provide insight on historical and contemporary portrait photographers.</td>
<td>Prerequisites: ART F483 or COJO F402; ART F487 or COJO F407.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>COJO F413</td>
<td>Mass Media Law and Regulation</td>
<td>(s)</td>
<td>Fall</td>
<td>Common law, statutory law and administrative law that affects the mass media, including libel, copyright, access to the media, constitutional problems, privacy, shield laws and broadcast regulations.</td>
<td>Prerequisites: COJO F202.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>COJO F421</td>
<td>Journalism in Perspective</td>
<td>(h)</td>
<td>Fall</td>
<td>Seminar-style exploration of the ethical, financial, corporate and international trends tugging at American journalism.</td>
<td>Prerequisites: Junior standing.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>COJO F425</td>
<td>Communication Theory</td>
<td>(W, s)</td>
<td>Spring</td>
<td>Theories of human communication, as well as of the nature of inquiry into human communication phenomena. Issues include the nature of communication as a discipline, critical and scientific inquiry, and major paradigms or perspectives within which communication theories are created.</td>
<td>Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; any F300-level communication courses; senior standing.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>COJO F430</td>
<td>Introduction to Public Relations</td>
<td>3</td>
<td>Fall</td>
<td>Introduction to the theories, practices, principles and history of public relations.</td>
<td>Prerequisites: COJO F131X or COJO F141X.</td>
<td>3 + 0 + 0</td>
</tr>
</tbody>
</table>
COJO F431 Public Relations Campaigns
3 Credits
Offered Spring
This course focuses on the application of public relations principles and practices, which is the research, planning and execution of the public relations campaign. It includes public relations writing for news releases and press kits, radio, television, and cable production, web and new technologies production, writing for newsletters and magazines and brochures and direct mail production. Students will learn how to create and execute effective public relations techniques.
Prerequisites: COJO F430; or ABUS F263.
Lecture + Lab + Other: 3 + 0 + 0

COJO F432 Professional Public Speaking (O)
3 Credits
Professional clear effective speaking. Uses evaluation criteria and assignments to build speaking competencies. Professional preparation for students whose career path includes public speaking.
Prerequisites: COJO F131X or COJO F141X; senior standing.
Lecture + Lab + Other: 3 + 0 + 0

COJO F435 Political Media and Discourses of the American Right (O, s)
3 Credits
Offered Fall Even-numbered Years or As Demand Warrants
This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts. Evaluation of the veracity, ethical or historical merits of conservative political stances is not part of the scope of the class.
Prerequisites: COJO F131X or COJO F141X; WRTG F211X; WRTG F212X, WRTG F213X or WRTG F214X.
Cross-listed with ANTH F435; LING F435.
Stacked with ANTH F635; LING F635; COJO F640.
Lecture + Lab + Other: 3 + 0 + 0

COJO F441 Persuasion (s)
3 Credits
Examination of communication situations which involve attempts to modify the beliefs, attitudes, values, intentions or behaviors of another individual or group of individuals. Explores the process, methods and ethics of attempts to affect change via persuasive communication.
Prerequisites: any F300-level communication course.
Lecture + Lab + Other: 3 + 0 + 0

COJO F444 Investigative Reporting (W, h)
3 Credits
Offered As Demand Warrants
Advanced reporting of news with emphasis on public service journalism. Develops sophisticated news judgment, writing and investigative reporting skills for print and electronic media.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F202.
Lecture + Lab + Other: 2 + 2 + 0

COJO F451 Cross-cultural Conflict Analysis and Intervention
3 Credits
Offered Spring.
Students will learn key concepts and skills that will help them respond to cross-cultural and human rights conflicts in a productive manner. Students will learn basic conflict analysis for cross-cultural and human rights disputes, including those occurring in rural Alaska. By the end of the course students will understand the theoretical assumptions that drive these conflicts and will learn tools to resolve them.
Prerequisites: COJO F302; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

COJO F452 Radio and Television News Writing (W)
3 Credits
Offered Spring
Overview of radio and television news writing. Emphasis on intensive news writing practice, including interviewing techniques, ethical issues and current controversies, and structure of television and radio news operations.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F202.
Lecture + Lab + Other: 3 + 0 + 0

COJO F453 Television News Reporting (O)
3 Credits
Offered Fall.
In-depth experience with television news production including electronic news gathering. Emphasis on producing a broadcast-quality weekly newscast and packages for distribution in various media.
Prerequisites: COJO F131X or COJO F141X; COJO F451; COJO F452.
Lecture + Lab + Other: 2 + 2 + 0

COJO F454 Newscast (O)
3 Credits
Offered Fall
In-depth experience with television news production including electronic news gathering. Emphasis on producing a broadcast-quality weekly newscast and packages for distribution in various media.
Prerequisites: COJO F131X or COJO F141X; COJO F451; COJO F452.
Lecture + Lab + Other: 2 + 2 + 0

COJO F456 Science Writing for the General Public (W, h)
3 Credits
Offered As Demand Warrants
Students write, read and analyze science articles, social media posts, blog posts and/or press releases. Course work includes writing and reading assignments, class workshops and conferences with the instructor. Emphasis on recognizing, finding and developing science stories; structuring articles; capturing reader interest; maintaining accuracy; and getting published. Scientists are welcome, but a science background is not necessary. Repeatable once for additional credit with permission of instructor.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F202.
Stacked with COJO F656.
Lecture + Lab + Other: 3 + 0 + 0
COJO F458  SFX Up Your Video (h)  3 Credits  Offered Spring Odd-numbered Years  An exploration into adding special effects to your video projects. Will include "green screen," titles, animation, color grading, DVD menu design and more.  
**Prerequisites:** FLPA F260 or COJO F290; FLPA F271 or FLPA F280 or COJO F280; video editing experience.  
**Cross-listed with** FLPA F458.  
**Lecture + Lab + Other:** 3 + 0 + 0  
COJO F460  History of German Film (h)  3 Credits  Offered As Demand Warrants  In-depth study of a representative selection of films from the 1920s to the present, taught in English and German (films will be in German with English subtitles). Students of German will have a special discussion session in German and will do reading and writing in German.  
**Prerequisites:** Junior standing.  
**Cross-listed with** GER F460.  
**Lecture + Lab + Other:** 3 + 0 + 0  
COJO F461  Law and Science of Arbitration (s)  3 Credits  Offered Spring  This course covers the law, social science, policy and practices relating to arbitration as it is utilized in both the private and public sector. Students will learn the history of arbitration, its applications, its rules of evidence, administering institutions and their rules, arbitral remedies and awards, grounds for judicial review, and its hybrid use with other processes including mediation, fact-finding, and early neutral evaluation.  
**Prerequisites:** COJO F302; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
**Lecture + Lab + Other:** 3 + 0 + 0  
COJO F462  Communication in Health Contexts (W, s)  3 Credits  Health communication as an established context for communication study will be explored. Problems in health communication will be examined as well as how those problems are exacerbated by the various matters of diversity, language and setting. Communication between health care professionals, between health care providers and health care consumers, between health care facilities and communities, and the legal perspectives of health communication will be topical.  
**Prerequisites:** Any F300-level communication course; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
**Lecture + Lab + Other:** 3 + 0 + 0  
COJO F464  History of Photography (h)  3 Credits  Offered Spring Even-numbered Years  This course will provide an exploration of the history, impact and development of the photographic process, spanning from the earliest observations of optics, through the development of the first permanent image, and all the way to the most recent advances in digital technology.  
**Prerequisites:** WRTG F111X.  
**Cross-listed with** ART F464.  
**Stacked with** ART F664.  
**Lecture + Lab + Other:** 3 + 0 + 0  
COJO F465  Clinic in Mediation, Conferencing and Circle Practices (s)  3 Credits  This course engages students in both theory and practice in mediation, conferencing and circle practices. The course emphasizes training and professional practice in a series of theory-to-practice applications. Students work through a series of cases in which they are encouraged to solve ethical dilemmas and conduct issues. In this course, students gain mediation practice skills and integral approached to mediation.  
**Prerequisites:** COJO F302; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
**Lecture + Lab + Other:** 3 + 0 + 0  
COJO F471  Advanced Digital Design (O, h)  3 Credits  Offered Spring  Project-oriented class in graphic design with applications from journalism to fine and commercial art. Students will be expected to have a background in programs likely to include web design, digital photography and graphic design. May be repeated for credit with permission of instructor.  
**Prerequisites:** COJO F131X or COJO F141X; COJO F250; ART F371 or COJO F371; one college level studio art course.  
**Cross-listed with** ART F471.  
**Lecture + Lab + Other:** 1 + 4 + 0  
COJO F472  3D Animation (O, h)  3 Credits  Offered Fall  Concept and technique of 3D computer generated animation with applications in fine and commercial art and science. Students will produce a series of three dimensional animation projects which will introduce them to the tools and concepts used by animation and visualization professionals. Note: May be repeated for credit.  
**Prerequisites:** ART F231 or FLPA F231; ART F371 or FLPA F371; COJO F131X or COJO F141X.  
**Cross-listed with** ART F472; FLPA F472.  
**Lecture + Lab + Other:** 1 + 4 + 0  
COJO F475  Applied Communication in Training and Development (W, s)  3 Credits  Applies communication theory and research to organizational settings. Includes the identification and assessment of problems and opportunities that would benefit from the application of communication interventions including training, development and transformation technologies.  
**Prerequisites:** Any F300-level communication course; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
**Lecture + Lab + Other:** 3 + 0 + 0  
COJO F480  Documentary Filmmaking (h)  3 Credits  Offered Spring  Basics of hands-on documentary filmmaking techniques, including preproduction, production and postproduction. Different documentary filmmaking directing styles and the process of distributing a documentary. Each student will produce a short documentary as the capstone of the course.  
**Prerequisites:** Basic experience in shooting and editing video.  
**Cross-listed with** FLPA F480.  
**Lecture + Lab + Other:** 3 + 0 + 0
COJO F481  Organizational Communication: Performance Management  
3 Credits  
Offered Fall  Even-numbered Years  
A comprehensive introduction to the role of communication in organizational change and development using Performance Management (PM) principles and practices. Ethical responsibility of PM communicators will be considered.  
Prerequisite: Any F300-level communication course.  
Lecture + Lab + Other: 3 + 0 + 0

COJO F482  Capstone Seminar in Communication  
3 Credits  
Offered Spring  
Original research to demonstrate ability to read and understand social research, synthesize information, formalize a research question and use research skills. This senior capstone course requires a research project presented in a public speaking forum.  
Prerequisites: COJO F131X or COJO F141X; COJO F401; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0

COJO F484  Multimedia Theory and Practice  
(h)  
3 Credits  
Offered Spring  
Study of techniques needed to produce multimedia with a special project for a university or community agency as the required final. For the purpose of this course, multimedia is defined as computer-based, user-driven products with audio, visual and text components and also video or film where appropriate. Primary program is Flash.  
Prerequisites: Understanding of computer graphics programs like Illustrator, Freehand, etc; plus some mastery of a specialty in writing, art or television production.  
Cross-listed with ART F484.  
Stacked with ART F684 and COJO F684.  
Lecture + Lab + Other: 2 + 2 + 0

COJO F490  Online Publication: "Extreme Alaska"  
3 Credits  
Using the department’s multimedia newsroom facilities, senior-level students work on a team, under the guidance of an instructor, to publish an online publication. Students are expected to show substantial initiative and creativity as they make use of the skills they have acquired in other journalism courses. Course may be repeated once for credit.  
Prerequisites: COJO F202; senior standing.  
Lecture + Lab + Other: 2 + 2 + 0

COJO F492  Seminar  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0

COJO F498  Undergraduate Research  
3 Credits  
Lecture + Lab + Other: 0 + 0 + 0

COJO F600  Introduction to Professional Communication  
3 Credits  
Offered Fall  
An introduction to professional practices important to communication careers. Professional writing and editing methods and techniques used in academic and/or professional careers. Development and presentation of professional reports which would include quantitatively- and qualitatively-based support. A.P.A. style guide will be covered.  
Prerequisites: Enrollment in M.A. in Professional Communication.  
Lecture + Lab + Other: 3 + 0 + 0

COJO F601  Communication Research Methodologies: Social Science  
3 Credits  
Offered Fall  
Introduction to the range of methodologies used to produce both practical and theoretic knowledge in the discipline. Presents the relationships between scientific questions, appropriate selection of methodology and types of knowledge products. Note: COJO F601 is a required core course for the M.A. in Professional Communication.  
Lecture + Lab + Other: 3 + 0 + 0

COJO F602  Communication Research Methodologies: Human Science  
3 Credits  
Offered Spring  
An introduction to research using a constructionist epistemology and the methodologies of the human science contexture. Includes evaluation and preparation of research using a variety of methodologies and to employ the data collection techniques that are implied by those methodologies.  
Prerequisites: COJO F601; COJO F625.  
Lecture + Lab + Other: 3 + 0 + 0

COJO F605  Advanced Photography Seminar  
3 Credits  
Offered Spring Odd-numbered Years  
Advanced discussion of photojournalism and photographic topics with field, studio, and darkroom sessions. Topics will range from the photographic essay to the history of photography and working in series. Weekly classroom meeting will be supplemented by field, studio, and darkroom sessions.  
Prerequisites: COJO F402; COJO F404.  
Cross-listed with ART F665.  
Stacked with COJO F605; ART F465.  
Lecture + Lab + Other: 2 + 3 + 0

COJO F611  Advanced Writing for Publication  
3 Credits  
Offered As Demand Warrants  
An intensive writing course focused on producing books and in-depth magazine features. Emphasis will be on writing, editing and research. The business and legal aspects of becoming an author will also be covered.  
Prerequisites: COJO F202 or comparable upper-division ENGL courses; graduate standing.  
Lecture + Lab + Other: 3 + 3 + 0

COJO F613  Advanced Mass Media Law and Regulation  
3 Credits  
Offered As Demand Warrants  
Seminar on current issues, legal opinions and legislative actions which directly affect the mass media. Special emphasis on technological evolution, corporate growth and deregulation of administrative media law.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

COJO F622  Interpersonal Interaction  
3 Credits  
All understandings of communication study begin at the interpersonal level because this is the context in which the relation of self and the social is most clear. Interpersonal Interaction will provide students an opportunity to investigate a particular communication context of their choice (health, family, aging, conflict, relational, education, etc.) and ways in which interpersonal interactions interconnect human social life at all levels of lived experience.  
Prerequisites: Enrollment in M.A. in Professional Communication degree.  
Lecture + Lab + Other: 3 + 0 + 0
COJO F625 Communication Theory
3 Credits
Offered Fall
Required course for the master’s degree in Professional Communication. The course is designed to acquaint students with both the historical evolution of the discipline against the backdrop of the evolution of the social sciences and with the theoretical perspectives of knowledge-building that have marked that disciplinary evolution. Students will learn the contextual interconnectedness of philosophy and theory. Finally, Communication Theory will also make the essential connections between theoretical perspectives and their professional uses.

Lecture + Lab + Other: 3 + 0 + 0

COJO F631 Teambuilding
3 Credits
Offered As Demand Warrants
Small group communication theory and methods linked to professional applications. Ways to create, maintain and reward productive work teams. Face-to-face and mediated group sessions will be discussed as well as the impact of professional work groups on organizational teambuilding. Students will work with teambuilding interventions that they will be able to apply in a variety of organizational settings.

Prerequisites: COJO F600.
Recommended: COJO F625.

Lecture + Lab + Other: 3 + 0 + 0

COJO F633 Public Relations Theory and Practice
3 Credits
Offered As Demand Warrants
Theory, practice and research in public relations. Emphasis on public relations in business, industry, government institutions and nonprofit organizations, as well as the role of public relations in American mass media.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

COJO F635 Organizational Culture and Communication
3 Credits
Contemporary perspectives on communication in the organizational context. The interpretive paradigm will be examined in terms of the broad range of knowledge currently being generated by communication scholars and other professionals who are looking more closely at the ways communication produces the social contexts in which it occurs. Human organizations and their transparency to the communication of their members is the pragmatic substance of the course.

Prerequisites: Enrollment in M.A. in Professional Communication degree.

Lecture + Lab + Other: 3 + 0 + 0

COJO F640 Political Media and Discourses of the American Right
3 Credits
This class uses “hands-on” discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts. Evaluation of the veracity, ethical or historical merits of conservative political stances is not part of the scope of the class.

Prerequisites: Graduate standing.
Cross-listed with ANTH F635; LING F635.
Stacked with ANTH F435; LING F435; COJO F435.

Lecture + Lab + Other: 3 + 0 + 0

COJO F642 Health Communication
3 Credits
Offered As Demand Warrants
Health Communication is intended to give students and interested professionals in related fields access to the most current research in this area. The course will address human communication at every level of interaction in the provision of health care: interpersonal (e.g., doctor/patient), small group (e.g., clinic cardiac team), intra-organizational (e.g., medical staff and business staff), inter-organizational (e.g., hospital and schools), public campaigns (e.g., Center for Disease Control and prevention initiatives on drunk driving), and associated communication factors such as culture and diversity. Includes involvement in research and grant-proposal writing.

Prerequisites: Enrollment in M.A. in Professional Communication degree.

Lecture + Lab + Other: 3 + 0 + 0

COJO F656 Science Writing for the General Public
3 Credits
Offered As Demand Warrants
Students write, read and analyze science articles, social media posts, blog posts and/or press releases. Course work includes writing and reading assignments, class workshops and conferences with the instructor. Emphasis on recognizing, finding and developing science stories; structuring articles; capturing reader interest; maintaining accuracy; and getting published. Scientists are welcome, but a science background is not necessary. Repeatable once for additional credit with permission of instructor.

Prerequisites: Graduate standing.

Stacked with COJO F456.

Lecture + Lab + Other: 3 + 0 + 0

COJO F661 Mentored Teaching in Communication
1 Credit
Mentored teaching provides consistent contact on course-related issues between teaching assistants and mentoring faculty. Note: Teaching assistants are required to be enrolled in a mentoring teaching section while teaching. May be repeated up to four times for credit.

Prerequisites: Enrollment in M.A. in Professional Communication; award of teaching assistantship in communication.

Lecture + Lab + Other: 1 + 0 + 2

COJO F675 Training and Development Communication
3 Credits
Offered Spring
Training and Development Communication offers students practical, current understandings of planned training, development and transformation processes as they are applied in the organizational setting. The information and class projects will help prepare training and development specialists, consultants and others whose interest is in this growing communication field.

Prerequisites: Enrollment in M.A. in Professional Communication degree.

Lecture + Lab + Other: 3 + 0 + 0
COJO F680  Communication and Diversity in the Professional World
3 Credits
Offered Spring
Case study methods applied to the ever-expanding problems of communication in a changing workplace. The diversity of gender, race, ethnicity, nationality, physical ability, sexual orientation and age are reshaping the professional world at every level and communication professionals are increasingly called upon to formulate ways of accommodating this change. The course will prepare students to address diversity and planned changes in the workplace.
Prerequisites: Enrollment in M.A. in Professional Communication degree.
Lecture + Lab + Other: 3 + 0 + 0

COJO F682  Seminar in Communication
3 Credits
Offered As Demand Warrants
A variable content seminar intended to give students an opportunity to work closely with communication faculty in the study of topics, ideas or methodologies significant to the communication discipline (e.g., relational conflict, social construction, narrative research, etc.).
Prerequisites: Enrollment in M.A. in Professional Communication degree.
Lecture + Lab + Other: 3 + 0 + 0

COJO F684  Multimedia Theory and Practice
3 Credits
Offered Spring
Study of techniques needed to produce multimedia with a special project for some university or community agency as the required final. For the purpose of this course multimedia is defined as computer-based, user-driven products with audio, visual and text components and also video or film where appropriate. Primary program is Flash. plus some mastery of a specialty in writing, art, or television production.
Prerequisites: Understanding of computer graphics programs like Illustrator, Freehand, etc.
Cross-listed with ART F684.
Stacked with ART F484 and COJO F484.
Lecture + Lab + Other: 3 + 3 + 0

COJO F692  MFA Seminar
3 Credits
Lecture + Lab + Other: 1 + 4 + 0

COJO F698  Non-Thesis Research/Project
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

COJO F699  Thesis
1-9 Credits
Every candidate for the communication concentration of the master's degree in professional communication will complete a thesis project. The requirement consists of an original piece of communication research directed by a member of the graduate faculty in the communication department. The completed and accepted thesis will be presented in an appropriate public forum.
Lecture + Lab + Other: 0 + 0 + 0
CHP F203  Clinical Update for Community Health Practitioners  
1-3 Credits  
Offered As Demand Warrants.  
Review, update and reinforcement of knowledge and skills taught in CHP F131, CHP F132, CHP F133 and CHP F134. Emphasis is on patient evaluation skills, use of the manual, patient treatment plan, medicines, prenatal care, well-child care, chronic patient care and emergency care. Clinical training is provided. Also offered as pass/fail as CHP F203P.  
Prerequisites: CHP F134.  
Lecture + Lab + Other: 1-3 + 0 + 0

CHP F203P  Clinical Update for Community Health Practitioners  
1-3 Credits  
Offered as Demand Warrants  
Review, update and reinforcement of knowledge and skills taught in CHP F131, CHP F132, CHP F133 and CHP F134. Emphasis is on patient evaluation skills, use of the manual, patient treatment plan, medicines, prenatal care, well-child care, chronic patient care and emergency care. Clinical training is provided.  
Prerequisites: CHP F134.  
Lecture + Lab + Other: 1-3 + 0 + 0

CHP F207  Maternal and Infant Health  
1-3 Credits  
Offered As Demand Warrants  
Review of the anatomy of the reproductive system, family planning, pregnancy, fetal development, prenatal care, prenatal education, emergency delivery, postpartum care for mother and baby, and well-child evaluations and immunizations.  
Prerequisites: CHP F134.  
Lecture + Lab + Other: 1-3 + 0 + 0

CHP F208  Communicable Diseases  
1-3 Credits  
Offered As Demand Warrants  
Expands concepts in relation to diagnosis, management and prevention of sexually transmitted diseases. Skills taught include male and female genitalia exam, pelvic exam, pap smear, gonorrhea culture and chlamydia culture. Prevention and patient education are emphasized.  
Prerequisites: CHP F134.  
Lecture + Lab + Other: 1-3 + 0 + 0

CHP F210  CHAM Use and Documentation (a)  
1 Credit  
Review and explore many types of patient encounters encompassed by the scope of practice of the Alaska Community Health Aide/Practitioner (CHA/P). Focus is on professional standard of care issues and provision of competent and legal documentation of patient encounters. Emphasis on proper use of the Alaska Community Health Aide/Practitioner (CHAM) to conduct and document the encounter and its legal significance.  
Special restrictions: Employed as a Community Health Aide by a Native Tribal Health Organization.  
Prerequisites: CHP F131; CHP F132.  
Lecture + Lab + Other: 0 + 0 + 32

CHP F211  Health Education  
1-3 Credits  
Offered As Demand Warrants  
Methods and philosophy of health education, use and sources of audiovisual materials, presentation planning and participation in school and community health programs are included. A variety of teaching methods including role playing for individual and group presentations permit CHPs to practice their health education knowledge and skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CHP F212  Diabetes: Primary Prevention and Village Medical Care  
1-3 Credits  
Offered As Demand Warrants  
Pathophysiology, primary prevention and follow-up treatment of the disease diabetes. Topics include the problem of Type II diabetes in rural Alaska, CHP role in the village health care system, Type I and Type II diabetes, primary prevention of Type II diabetes, village medical care and referral, patient education, emergency care and diabetes medications. The clinical training portion of the course is available for Community Health Aides/Practitioners only.  
Lecture + Lab + Other: 1-3 + 0 + 0

CHP F214  Cancer: Risks, Diagnosis and Treatment  
3 Credits  
Offered Spring, As Demand Warrants  
Recommended: CHP F134.  
Lecture + Lab + Other: 3 + 0 + 0

CHP F215  Death and Dying  
3 Credits  
Offered As Demand Warrants  
Focusing on contemporary primary care issues relating to death and dying. Improving individual coping skills in loss and grief situations. Topics include theories of grief and loss, care of the terminally ill patient, suicide, euthanasia, traumatic death and neonatal death. Cultural perspectives on dying, body preparation, burial rites, advanced directives, death certificates and legal issues reviewed.  
Lecture + Lab + Other: 3 + 0 + 0

CHP F220  Women's Health: Breast and Cervical Cancer Screening  
2 Credits  
Offered As Demand Warrants  
Review of anatomy, physiology and pathophysiology of the female breasts and genitals, with reinforcement of identification of risk factors as they relate to the development of breast and cervical cancer. Skills taught include female breast and genital history taking, examination to include Pap, chlamydia and gonorrhea specimen collection, development of appropriate assessments and plans. Areas emphasized: prevention and/or early detection.  
Prerequisites: CHP F134.  
Lecture + Lab + Other: 2 + 0 + 0

CHP F225  Current Issues in Rural Health Care  
1-3 Credits  
Offered As Demand Warrants  
Selected current issues in medical education intended for, but not limited to, community health aides/practitioners with emphasis on expanding concepts relating to understanding, diagnosis and management of illnesses common to rural Alaskan communities. May be repeated for credit. Community Health majors may apply up to a maximum of three credits towards the F200-level major specialty requirements for an A.A.S. degree.  
Lecture + Lab + Other: 1-3 + 0 + 0
Computer and Information Technology Systems (CITS)

CITS F201  Microcomputer Operating Systems Support
1-3 Credits
Offered As Demand Warrants
Comprehensive exploration of a current microcomputer operating system: use, configuring, installing and administering. Topics include end-user and technical support.
Recommended: CITS F203 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CITS F202  Microcomputer Hardware Support
1-3 Credits
Offered As Demand Warrants
Fundamental hardware and software (associated with hardware) configuration and troubleshooting. Includes installing, removing and configuring computer hardware components; installing and configuring software applications and operating systems to support hardware; diagnosing hardware and software problems; and developing troubleshooting and configuration procedures.
Recommended: CITS F201 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CITS F203  Information Technology Support Fundamentals
4 Credits
Offered As Demand Warrants
Overview of skills and knowledge required by professional computer support technicians to support and troubleshoot computer operating systems and computer hardware, including the purpose and function of the internal components of a computer, how to assemble a computer system, install an operating system and the basic skills and knowledge required to connect to and share resources in a network environment. Course covers objectives defined for CompTIA A+ certification.
Recommended: CITS F150 or equivalent skills.
Lecture + Lab + Other: 4 + 0 + 0

CITS F204  Introduction to Computer Networks
3 Credits
Offered As Demand Warrants
Features and functions of networking components and the knowledge and skills needed to install, configure and troubleshoot basic networking hardware, protocols and services. Develop technical ability in the areas of media and topologies, protocols and standards, network implementation and basic network administration and support. Course covers objectives defined for CompTIA Network+ certification.
Recommended: CITS F203 (may be taken concurrently) or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F205  Introduction to Microcomputer Programming
1-3 Credits
Offered As Demand Warrants
Microcomputer programming focused on programming concepts for applications, operating systems and web technologies. Supplementing and integrating computer applications with built-in programming tools.
Prerequisites: Math placement at the 100-level.
Lecture + Lab + Other: 1-3 + 0 + 0

CITS F206  Object-Oriented Programming
1-4 Credits
Offered As Demand Warrants
In-depth and comprehensive technical class covering object-oriented programming concepts and development methodologies. Course is intended to prepare students for entry-level software engineering positions. Topics include: object-oriented design; software development process; common object-oriented programming languages; and object-oriented programming concepts. Course is offered on a demand basis.
Recommended: CITS F205 or CS F103; or equivalent skills.
Lecture + Lab + Other: 1-4 + 0 + 0

CITS F207  Advanced Object-Oriented Programming
1-4 Credits
Offered As Demand Warrants
Advanced topics in object-oriented programming. Topics include: object-oriented design patterns; advanced programming concepts; and advanced software development tools. Course is intended to prepare students for advanced software engineering positions. Course is offered on a demand basis.
Recommended: CITS F206 or equivalent skills.
Lecture + Lab + Other: 1-4 + 0 + 0

CITS F208  Advanced Programming Concepts
1-4 Credits
Offered As Demand Warrants
Advanced programming concepts for microcomputer programming. Topics include: data representation, functions, control structures and arrays. Course is intended to prepare students for advanced software engineering positions. Course is offered on a demand basis.
Recommended: CITS F205 or equivalent skills.
Lecture + Lab + Other: 1-4 + 0 + 0

CITS F209  Advanced Microcomputer Programming
1-4 Credits
Offered As Demand Warrants
Advanced topics in microcomputer programming. Topics include: data representation, functions, control structures and arrays. Course is intended to prepare students for advanced software engineering positions. Course is offered on a demand basis.
Recommended: CITS F205 or equivalent skills.
Lecture + Lab + Other: 1-4 + 0 + 0

CITS F210  Database Management Systems
3 Credits
Offered As Demand Warrants
Fundamentals in database management systems. Covers basic concepts, data representation, database design, data models and data manipulation. Course is offered on a demand basis.
Recommended: CITS F205 or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F211  Database Applications Development
3 Credits
Offered As Demand Warrants
Introduction to database applications development. Covers basic concepts, data representation, database design, data models and data manipulation. Course is offered on a demand basis.
Recommended: CITS F205 or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F212  Server Operating Systems
3 Credits
Offered As Demand Warrants
Fundamentals in installing, configuring and maintaining server operating systems. Learn how to configure and administer network accounts, resources, and common services deployed on server operating systems. Course covers foundation server operating system knowledge required for Microsoft Certified Technology Specialist (MCTS) certification exams related to server technologies.
Prerequisite: CITS F204 (may be taken concurrently) or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F219  Microcomputer Operating Systems: Topics
1-4 Credits
Offered As Demand Warrants
In-depth and comprehensive technical class covering operating system skills and concepts. Course may be repeated for credit.
Recommended: CITS F203 or equivalent skills.
Lecture + Lab + Other: 1-4 + 0 + 0

CITS F220  Implementing Internet Tools and Technologies
3 Credits
Offered As Demand Warrants
Exploration of advanced Internet topics. Building a presence on the Internet -- evaluate web hosting services, domain names and registration services. How to implement and understand web communication tools and develop and understand the impact of participating in social networks and the changing nature of these networks.
Recommended: CITS F150 or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F221  Graphics and Multimedia for the Web
3 Credits
Offered As Demand Warrants
Creating graphics and multimedia content for the Web. Graphic topics include formats, size and resolution, optimization and design fundamentals. Multimedia topics include animation, interactivity and combining sound, speech, graphics, photographs and video.
Recommended: CITS F150 or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F222  Website Design
1-3 Credits
Offered As Demand Warrants
Comprehensive survey of professional website design and authoring tools used to create Internet websites. Topics include: website design and planning; HTML, XHTML and CSS.
Recommended: CITS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CITS F224  Web Scripting
3 Credits
Offered As Demand Warrants
Introduction to client-side Web page scripting. Covers basic programming concepts, including data representation, functions, control structures and arrays. Topics include client-side scripting with JavaScript, object-oriented JavaScript, design issues, error handling, security, the Document Object Model and dynamic HTML and AJAX.
Prerequisite: CITS F205 or CS F103; CITS F222; or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CIOS F150  Computer Basic Skills
1-3 Credits
Offered As Demand Warrants
Overview of basic computer concepts and skills. Course is intended to prepare students for other information technology courses.
Recommended: CIOS F150; or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F151  Operating Systems Support Fundamentals
1-3 Credits
Offered As Demand Warrants
Fundamental concepts of operating systems and systems management. Topics include: system use, configuring, installing and administering. Course covers objectives defined for CompTIA A+ certification.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F152  Computer Hardware Support Fundamentals
1-3 Credits
Offered As Demand Warrants
Fundamental concepts and skills related to computer hardware components. Course is intended to prepare students for other information technology courses.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F153  Microcomputer Operating Systems Support Fundamentals
1-3 Credits
Offered As Demand Warrants
Fundamental concepts and skills related to microcomputer operating systems. Course is intended to prepare students for other information technology courses.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F154  Introduction to Computer Networks
1-3 Credits
Offered As Demand Warrants
Overview of computer networking concepts and skills. Course is intended to prepare students for other information technology courses.
Recommended: CIOS F150; or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F155  Introduction to Computer Concepts
1-3 Credits
Offered As Demand Warrants
Overview of computer concepts and use. Course is intended to prepare students for other information technology courses.
Recommended: CIOS F150; or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F156  Microcomputer Operating Systems Support
1-3 Credits
Offered As Demand Warrants
Overview of basic concepts and skills related to microcomputer operating systems. Course is intended to prepare students for other information technology courses.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

Math placement at the 100-level.
CITS F225  Web Databases and Programming  
3 Credits  
Offered As Demand Warrants  
Programming and database design as it relates to creating dynamic web sites and applications. Develop web applications to automate websites, create and access web databases, provide tools for users to modify parts of their own website, create and access files on the fly and reduce repetitive maintenance. Course topics include CSS, SSI, DHTML, SQL, PHP and other web technologies.  
**Prerequisites:** CITS F205 or CS F103; CITS F222; or equivalent skills.  
**Lecture + Lab + Other:** 3 + 0 + 0

CITS F228  Advanced Website Design and Development  
3 Credits  
Offered As Demand Warrants  
Plan and implement professional and comprehensive websites that utilize and integrate multiple website design and development technologies such as XHTML, CSS, XML, Ajax, Web APIs, client-side and server-side programming, graphics and multimedia, and web communication tools.  
**Prerequisites:** CITS F221; CITS F222; CITS F224; CITS F225; or equivalent skills.  
**Lecture + Lab + Other:** 3 + 0 + 0

CITS F240  System and Network Services Administration  
3 Credits  
Offered As Demand Warrants  
Implement and administer the core network services operating within a network environment. Topics include: DHCP, DNS, remote access, file and print, security and network management services. Develop a conceptual understanding of each network service and learn how to plan, implement and administer each service. Course covers system and network services objectives required for Microsoft Certified Technology Specialist (MCTS) certification exams related to server technologies.  
**Prerequisites:** CITS F212 (may be taken concurrently) or equivalent skills.  
**Lecture + Lab + Other:** 3 + 0 + 0

CITS F241  Networking and LAN Infrastructure Basics  
4 Credits  
Offered As Demand Warrants  
Design and implementation of networks in small- to medium-sized environments. Focuses on network terminology and protocols, local-area networks (LANs), wide-area networks (WANs), open systems interconnection model, cabling, cabling tools, routers, router programming, Ethernet, Internet protocol addressing and network standards.  
**Recommended:** CITS F201; CITS F202; or equivalent skills.  
**Lecture + Lab + Other:** 4 + 0 + 0

CITS F242  Routing and Switching Essentials  
4 Credits  
Offered As Demand Warrants  
This course teaches students the architecture, components, and operations of routers and switches in a small network. Students learn to configure routers and switches for basic functionality as well as troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. This course is the second of four courses that cover objectives required for the Cisco Certified networking Associate (CCNA) certification.  
**Prerequisites:** CITS F241.  
**Lecture + Lab + Other:** 4 + 0 + 0

CITS F243  Intermediate Networking and LAN Infrastructure  
4 Credits  
Offered As Demand Warrants  
Provide an understanding of the architecture, components, and operations of routers and switches in large and complex networks. Students will learn how to configure routers and switches for advanced functionality. Topics include configuring and troubleshooting routers and switches and resolving common issues with OSPF, EIGRP, STP and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network. This course is the third of four courses that cover objectives required for the Cisco Certified Networking Associate (CCNA) certification.  
**Prerequisites:** CITS F241.  
**Lecture + Lab + Other:** 4 + 0 + 0

CITS F244  Advanced Network Infrastructure Services  
4 Credits  
Offered As Demand Warrants  
This course discusses the WAN technologies and network services required by converged applications in a complex network. Students will understand the selection criteria of network devices and WAN technologies to meet network requirements. Students will learn to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement IPsec and virtual private networks (VPN) operations in a complex network. This course is the fourth of four courses that cover objectives required for the Cisco Certified Networking Associate (CCNA) certification.  
**Prerequisites:** CITS F242; CITS F243.  
**Lecture + Lab + Other:** 4 + 0 + 0

CITS F245  Networking and Communications: Topics  
1-4 Credits  
Offered As Demand Warrants  
In-depth technical and comprehensive coverage of networking and communications skills and concepts. Note: May be repeated for credit.  
**Recommended:** CITS F204 or equivalent skills.  
**Lecture + Lab + Other:** 1-4 + 0 + 0

CITS F261  Computer and Network Security  
3 Credits  
Offered As Demand Warrants  
The fundamental concepts of computer and network security. Course topics include: understanding threats to a computing infrastructure, understanding encryption technologies, securing network communications and applications, security policies and responding to incidents. Course covers objectives defined for CompTIA Security+ certification.  
**Prerequisites:** CITS F204 or equivalent skills.  
**Lecture + Lab + Other:** 3 + 0 + 0

CITS F262  Cybersecurity Defense and Countermeasures  
3 Credits  
This course focuses on network and information systems security from a defensive point of view. Students will learn how to analyze internal and external security threats, develop security policies, and implement security measures to protect information within an enterprise. Topics include risk assessment, security policies and procedures, incident response, cryptographic services, network and host-based security.  
**Prerequisites:** CITS F261 or equivalent skills.  
**Lecture + Lab + Other:** 3 + 0 + 0
CITS F263  Network Security Penetration Testing
3 Credits
Offered As Demand Warrants
This course focuses on network and information systems security from an offensive point of view. Students will learn technical testing and examination techniques used to identify, validate and assess technical vulnerabilities within an enterprise. Topics include penetration testing methodology, footprinting and reconnaissance, scanning and enumeration, vulnerability validation, data collection and reporting.
Prerequisites: CITS F261 or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F265  Directory Services Administration
3 Credits
Offered As Demand Warrants
The purpose and components that make up directory services and the role these services play in storing, organizing and managing information in a network environment. How to create and configure directory service objects to manage access to network resources, to implement and manage group policy objects, and to backup, restore, monitor, and troubleshoot directory service related issues. Course covers directory services administration objectives required for Microsoft Certified Technology Specialist (MCTS) certification exams related to server technologies.
Prerequisite: CITS F212 (may be taken concurrently) or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F281  Professional Practices in IT
1-3 Credits
Offered As Demand Warrants
Prepares students for work as an IT professional. Topics include: providing computer technical support, user support management, soft skills in IT, resume writing and career exploration, diagnosing problems, researching and documenting solutions, meeting user needs, developing training materials and giving workshops and lessons.
Prerequisites: 24 credits in CITS courses.
Lecture + Lab + Other: 1-3 + 0 + 0

CITS F282  IT Troubleshooting Skills
1-3 Credits
Offered As Demand Warrants
Practical IT troubleshooting skills, including hardware, software, networks and operating systems. The course will include practical and useful troubleshooting scenarios.
Prerequisites: CITS F203; CITS F204 or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CITS F284  Independent Project
1-3 Credits
Offered As Demand Warrants
Student created project or internship that includes learning new skills, applying the skills to significant problems, and demonstrating the results to other computer users. Includes application of learned skills in a professional manner.
Prerequisites: 12 credits in CITS courses.
Lecture + Lab + Other: 1-3 + 0 + 0

CITS F285  Cooperative Work Experience
3 Credits
Offered As Demand Warrants
On-the-job training related to occupational objectives. Weekly seminar with coordinator required.
Prerequisites: 12 credits in CITS courses.
Lecture + Lab + Other: 3 + 0 + 0

CITS F288  Professional Certification Review
1-3 Credits
Offered As Demand Warrants
Prepares students for national or industry specific certification examination.
Lecture + Lab + Other: 1-3 + 0 + 0

CITS F289  Information Technology: Topics
1-3 Credits
Offered As Demand Warrants
Comprehensive coverage of a specific information technology topic.
Recommended: CITS F203 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

Computer Information and Office Systems (CIOS)

CIOS F100  Introduction to Personal Computers
1 Credit
Offered As Demand Warrants
Introduction to basic computer skills including using the mouse and menus, opening and exiting applications, creating basic word processing and spreadsheet files, basic file management, web browsing, email and virus protection.
Lecture + Lab + Other: 1 + 0 + 0

CIOS F103  Computer Survey
1-3 Credits
Offered As Demand Warrants
An introduction to the world of computers emphasizing microcomputers. Provides computer terminology and how to use computers as a tool to make work easier and to extend the reach of the mind.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F128  Microcomputer Operating Systems
3 Credits
Offered As Demand Warrants
Introduces students to the use and configuration of a current microcomputer operating system. Topics include: basic use, configuration, troubleshooting and maintenance, connecting to the Internet and security basics and safe computing practices.
Prerequisites: Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 3 + 0 + 0

CIOS F133  Microcomputer Presentation Software
1-3 Credits
Offered As Demand Warrants
Comprehensive exploration of topics related to using microcomputer word processors. Includes creating, formatting and revising documents; using proofreading and editing tools; implementing styles; using templates; and customizing the application.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150  Microcomputer Operating Systems
3 Credits
Offered As Demand Warrants
Introduces students to the use and configuration of a current microcomputer operating system. Topics include: basic use, configuration, troubleshooting and maintenance, connecting to the Internet and security basics and safe computing practices.
Prerequisites: CIOS F100 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0
CIOS F135  Microcomputer Spreadsheets
1-3 Credits
Offered As Demand Warrants
Comprehensive exploration of topics related to using microcomputer
spreadsheets. Includes creating, formatting and revising spreadsheets;
creating formulas, graphics and charts; and using spreadsheets to
organize, analyze and query information.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F146  Using Internet Tools and Technologies
1-3 Credits
Offered As Demand Warrants
Presentation of the Internet. Includes using and configuring current
World Wide Web and email, and other communication tools; developing
searching strategies; current and future trends; and basic web authoring.
Recommended: Basic computer literacy, including saving and retrieving
files and using basic software.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F146C Using the Internet
1-3 Credits
Offered As Demand Warrants
Presentation of the Internet. Includes using and configuring current World
Wide Web and e-mail tools; developing searching strategies; current and
future trends; and basic web authoring.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150  Computer Business Applications
1-3 Credits
Offered As Demand Warrants
Designed to develop computer literacy in the use and understanding of
computer systems, office productivity applications and the Internet.
Topics include operating system fundamentals, file management, word
processing and spreadsheet fundamentals and safe, secure and effective
use of Internet technologies.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F189  Microcomputer Applications: Topics
1-3 Credits
Offered As Demand Warrants
Extensive coverage of a specific microcomputer application. May be
repeated for credit.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F216  Information Technology Certification II
1-4 Credits
Offered As Demand Warrants
In-depth technical and comprehensive coverage of skills required for the
intermediate stage of a specific information technology certification.
Course may be repeated for different certifications.
Lecture + Lab + Other: 1-4 + 0 + 0

CIOS F217  Information Technology Certification III
1-4 Credits
Offered As Demand Warrants
In-depth technical and comprehensive coverage of skills required for the
advanced stage of a specific information technology certification. Course
may be repeated for different certifications.
Lecture + Lab + Other: 1-4 + 0 + 0

CIOS F230  Advanced Word Processing
1-3 Credits
Offered As Demand Warrants
Advanced concepts of word processing using various software.
Prerequisites: CIOS F130.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F231  Introduction to Desktop Publishing
1-2 Credits
Offered As Demand Warrants
Entry-level desktop publishing course introducing the chief features of a
page layout program. Step-by-step instructions to create at least three
simple publications.
Prerequisites: Previous computer experience.
Lecture + Lab + Other: 1-2 + 0 + 0

CIOS F233  Desktop Publishing
1-3 Credits
Offered As Demand Warrants
Publication design and layout using desktop publishing software.
Includes integrating text and graphics, page layout design, scanning and
basic image editing.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F240  Microcomputer Databases
1-3 Credits
Offered As Demand Warrants
Comprehensive introduction to microcomputer databases. Includes basic
database concepts; how to maintain and update databases; how to build
and use queries and forms; and how to build reports. Introduction to
database design.
Recommended: CIOS F135 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F255  Digital Graphics
1-3 Credits
Offered As Demand Warrants
Comprehensive survey of microcomputer graphics using a graphics
application. Includes use of professional-level graphics programs to
create sophisticated graphics for a variety of uses.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F257  Digital Video
1-3 Credits
Offered As Demand Warrants
Comprehensive survey of creating and editing digital video using
microcomputer tools. Includes the use of professional-level digital video
applications to create short videos for a variety of uses.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F258  Digital Photography
1-3 Credits
Offered As Demand Warrants
Comprehensive survey of tools and methods to create and edit digital
images using microcomputer tools. Includes the use of professional-level
digital photography applications.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0
**Computer Science (CS)**

**CS F101  Computers and Society**  (m)  
3 Credits  
Computer literacy for everyone. Overview of computing machines and automatic data processing. Interaction between social institutions and automated decision-making. Introduction to business applications software and electronic mail. Some programming for understanding, not for skill development.  
**Prerequisites:** Two years of high school mathematics, including at least one year of algebra.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F103  Introduction to Computer Programming**  
3 Credits  
Programming for non-majors and for those computer science students without the background for CS F201. Concepts of object-oriented programming and algorithm design within the syntax of the JAVA programming language.  
**Prerequisites:** Math placement at the 100-level.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F201  Computer Science I**  
3 Credits  
The discipline of computer science including problem solving, algorithm development, structured programming, top-down design, good programming style, object-oriented programming and elementary data structures. Concepts implemented with extensive programming experience in a structured language and with a group programming project.  
**Prerequisites:** One year high school level programming or CS F103; mathematics placement at the F200-level.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F202  Computer Science II**  
3 Credits  
The discipline of computer science including problem solving, algorithm development, structured programming, top-down design, good programming style, object-oriented programming and elementary data structures. Concepts implemented with extensive programming experience in a structured language and with a group programming project.  
**Prerequisites:** CS F201.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F301  Assembly Language Programming**  
3 Credits  
Offered Fall  
Organization of computer registers, I/O and control. Digital representation of data. Symbolic coding, instructions, addressing modes, program segmentation, linkage, macros and subroutines.  
**Prerequisites:** CS F201.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F311  Data Structures and Algorithms**  
3 Credits  
Offered Fall  
Data structures and the algorithms for their manipulation. Algorithmic efficiency and asymptotic notation. Algorithms for searching and sorting. Abstract data types and container data structures: arrays, linked lists, stacks, queues, trees, tables, heaps, balanced search trees, hash tables.  
**Prerequisites:** CS F202.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F313  Programming Languages**  
3 Credits  
Offered Spring  
Syntax and semantics of widely differing programming languages. Syntax specification, block structure, binding, data structures, operators and control structures. Comparison of several languages such as ALGOL, LISP, SNOBOL and APL.  
**Prerequisites:** CS F311.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F321  Operating Systems**  
3 Credits  
Offered Spring  
Functions of files and operating systems. Review of required architectural features. The PROCESS concept. Storage management, access methods and control, interrupt processing, scheduling algorithms, file organization and management, and resource accounting.  
**Prerequisites:** CS F301.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F331  Programming Languages**  
3 Credits  
Offered Spring  
Syntax and semantics of widely differing programming languages. Syntax specification, block structure, binding, data structures, operators and control structures. Comparison of several languages such as ALGOL, LISP, SNOBOL and APL.  
**Prerequisites:** CS F311.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F361  Systems Security and Administration**  
3 Credits  
Offered Alternate Fall Odd-numbered Years  
Advanced systems programming including privileged instructions and system services, authentication technologies, host-based and network-based security issues. Applications to asynchronous I/O, process control and communication, device drivers and file management.  
**Prerequisites:** CS F301.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F371  Computer Ethics and Technical Communication**  
3 Credits  
Offered Fall  
This course explores the social, legal and ethical issues aggravated, transformed or created by computer technology. Additional focus is on technical communication skills needed in the computer industry.  
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; CS F202.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F372  Software Construction**  
3 Credits  
Offered Spring  
Methods for programming and construction of complete computer applications, including refactoring, performance measurement, process documentation, unit testing, version control, integrated development environments, debugging and debuggers, interpreting requirements, and design patterns.  
**Prerequisites:** CS F311.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F381  Computer Graphics**  
3 Credits  
Offered Fall  
Creation of computer-generated images on programmable 3-D graphics hardware. Color, lighting, textures, hidden surfaces, 3-D geometric transformations, curve and surface representations, 2-D and 3-D user interfaces, and the visual modeling of physical phenomena.  
**Prerequisites:** CS F202; MATH F253X or MATH F314.  
**Lecture + Lab + Other:** 3 + 0 + 0  

**CS F392  Seminar**  
1-6 Credits  
**Lecture + Lab + Other:** 0 + 0 + 0
CS F405  Introduction to Artificial Intelligence
3 Credits
Offered Spring Even-numbered Years
Examine diverse branches of AI placing AI in larger context of computer science and software engineering. Knowledge representation formalism and search technology. Programming methodologies; procedural systems such as expert systems and blackboard systems and non-procedural systems such as neural networks. Software engineering aspects of problem selection, knowledge acquisition, verification and validation. Individual projects.
Prerequisites: CS F311.
Lecture + Lab + Other: 3 + 0 + 0

CS F411  Analysis of Algorithms
3 Credits
Offered Fall
Analysis of classic algorithms, their implementation and efficiency. Topics from combinatorics (sets, graphs), algebra (integer arithmetic, primes, polynomial arithmetic, GCD, Diophantine equations, encryption), systems (parsing searching, sorting) and theory (recursion, Turing machines). The complexity classes P, NP and NP complete.
Prerequisites: MATH F307, CS F311.
Lecture + Lab + Other: 3 + 0 + 0

CS F421  Distributed Operating Systems  (W)
3 Credits
Offered Fall
Detailed level study of distributed operating system algorithms, functions and associated implementation. Distributed operating system tuning methods and security. Role of distributed operating systems in net-centric computing. Programming, documentation and evaluation of distributed operating system segments as projects.
Prerequisites: CS F321; WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

CS F425  Database Systems
3 Credits
Offered Spring Odd-numbered Years
Data independence, modeling, relationships and organization. Hierarchical, network and relational data models; canonical schema. Data description languages, SQL, query facilities, functional dependencies, normalization, data integrity and reliability. Review of current database software packages.
Prerequisites: CS F311; CS F321.
Lecture + Lab + Other: 3 + 0 + 0

CS F441  System Architecture
3 Credits
Offered Spring
Computer design fundamentals, performance and cost, pipelining, instruction-level parallelism, memory hierarchy design, storage systems, and vector processing.
Prerequisites: CS F321; EE F341.
Lecture + Lab + Other: 3 + 0 + 0

CS F442  Computer Communication and Networks
3 Credits
Offered Fall Even-numbered Years
Study of computer networks using the ISO/OSI layered model as a framework. Design issues and trade-offs, protocols and selected standards. Emphasis on ISO/OSI Layers 1-4/(Physical, Data Link, Network and Transport Layers), plus medium access sublayers (LAN's, etc.).
Prerequisites: CS F321.
Lecture + Lab + Other: 3 + 0 + 0

CS F460  Introduction to Digital Forensics
3 Credits
Offered Fall Odd-numbered Years
Takes a hands-on approach to the forensics examination of computer technology. Focuses on the forensic process, methods, and tools utilized to collect and preserve and examine digital evidence. Course topics include: collection, preservation and examination of evidence from computers including file systems, email and malicious code.
Prerequisites: CS F321.
Lecture + Lab + Other: 3 + 0 + 0

CS F462  Intrusion Detection Systems
3 Credits
Offered Fall Even-numbered Years
Focus on IDS theory and practice and its importance; the origin and resolution of common security threats and vulnerabilities; host and network approaches to IDS implementation; and the legal, ethical, and privacy issues associated with IDS use and policies.
Prerequisites: CS F361.
Lecture + Lab + Other: 3 + 0 + 0

CS F463  Cryptography and Data Security
3 Credits
Offered Spring Odd-numbered Years
Specialized study of cryptography and its application in securing data systems, with an emphasis on applied cryptography. Topics include history of cryptography, encryption, digital signatures, authentication, electronic commerce, key distribution and management, private and public key cryptography, and protocols.
Prerequisites: MATH F307; CS F311.
Lecture + Lab + Other: 3 + 0 + 0

CS F471  Senior Capstone I  (W)
3 Credits
Offered Fall
Introduction to software engineering and project management principles, techniques, methods and standards for software system development. Additional topics include technical communication, computer ethics and legal issues.
Prerequisites: CS major; senior standing; CS F311; CS F371.
Lecture + Lab + Other: 3 + 0 + 0

CS F472  Senior Capstone II  (O, W)
3 Credits
Offered Spring
Group projects in a real computer industry environment and produce appropriate documentation and reports. Nature, ethics, and legal considerations of the computer science profession are discussed with an emphasis on ethics. Additional topics include project management, design methodologies, technical presentation, human-machine interface and programming team interactions.
Prerequisites: CS F372; CS F471.
Lecture + Lab + Other: 3 + 0 + 0

CS F480  Topics in Computer Science
3 Credits
Offered As Demand Warrants
Topics include, but are not limited to; computational linear algebra, cryptography, parallel algorithm development and analysis. Note: Course may be repeated when topics change.
Lecture + Lab + Other: 0 + 3 + 0
CS F481  Graphics Rendering  
3 Credits  
Offered Spring Even-numbered Years  
High-quality rendering techniques used in computer graphics: raytracing, shadows, antialiasing, volume rendering, radiometry and radiosity. Also topics such as particle systems, shading, image processing, computer aided design, video effects, animation and virtual environments.  
Prerequisites: CS F381.  
Lecture + Lab + Other: 3 + 0 + 0

CS F482  Simulations in Computer Graphics  
3 Credits  
Offered Spring Odd-numbered Years  
Software to simulate physical phenomena for use in interactive visualization, such as particle systems, Navier-Stokes fluid dynamics, and finite element solid mechanics. Includes Lagrangian and Eulerian meshes, stability, and discretization order. Our focus is on high performance qualitatively correct simulations, rather than high-precision solutions.  
Prerequisites: CS F381 and PHYS F212X.  
Lecture + Lab + Other: 3 + 0 + 0

CS F600  Professional Software Development  
4 Credits  
Offered Fall  
Participate in a group project to explore the technical, social and ethical aspects of software development. Topics include: requirements engineering, enterprise-level data storage, software architecture, security, software testing, legal issues, computer ethics, risk management and project management.  
Prerequisites: CS F472.  
Lecture + Lab + Other: 4 + 0 + 0

CS F601  Algorithms, Architecture and Languages  
4 Credits  
Offered Spring  
Current research on, and cross-cutting interrelationships between computer algorithms, machine architecture and languages. Covers asymptotic performance analysis including NP-completeness, modern parallel hardware including multicore, and grammars and parsing from regular expressions to BNF.  
Prerequisites: CS F331; CS F411; CS F441 or EE F443.  
Lecture + Lab + Other: 4 + 0 + 0

CS F605  Artificial Intelligence  
3 Credits  
Offered Spring Even-numbered Years  
Prerequisites: Graduate standing or permission of CS graduate advisor.  
Lecture + Lab + Other: 3 + 0 + 0

CS F611  Complexity of Algorithms  
3 Credits  
Offered Fall  
Theoretical analysis of various algorithms: topics include sorting, searching, selection, polynomial evaluation, NP completeness, decidability.  
Prerequisites: CS F411.  
Lecture + Lab + Other: 3 + 0 + 0

CS F621  Advanced Systems Programming  
3 Credits  
Offered As Demand Warrants  
Multiprogramming and multiprocessing systems. File and program security. Scheduling optimization and system tuning, I/O processing, archiving and system recovery, and initialization. Study of current systems.  
Prerequisites: CS F311 and CS F321.  
Lecture + Lab + Other: 3 + 0 + 0

CS F631  Programming Language Implementation  
3 Credits  
Offered Fall  
Formal treatment of programming language translation and compiler design. Parsing context-free languages, translation specifications, machine independent code, NBF, scanners, symbol tables, parsers and recursive descent. Programming of compiler or interpreter segments as projects.  
Prerequisites: CS F331.  
Lecture + Lab + Other: 3 + 0 + 0

CS F641  Advanced Systems Architecture  
3 Credits  
Offered Spring  
A study of advanced single processor systems. Detailed study of multiprocessor architectures, such as vector architectures, massively parallel processors and shared-memory multi-processors.  
Prerequisites: CS F441 or permission of Computer Science graduate advisor.  
Lecture + Lab + Other: 3 + 0 + 0

CS F642  Advanced Computer Networks  
3 Credits  
Offered Fall  
A study of networks of interacting computers. The problems, rationales and possible solutions for both distributed processing and distributed databases will be examined. Major national and international protocols will be presented.  
Prerequisites: Graduate standing or permission of Computer Science graduate advisor.  
Lecture + Lab + Other: 3 + 0 + 0

CS F671  Advanced Software Engineering  
3 Credits  
Offered Spring  
Advanced software development as an engineering discipline. Includes investigation of current tools, standards, foundation and trends in software engineering from component-ware, software system composition, e-systems, software architecture and CASE tools.  
Prerequisites: CS F471.  
Lecture + Lab + Other: 3 + 0 + 0

CS F680  Topics in Computer Science  
1-4 Credits  
Offered As Demand Warrants  
Example topics include, but are not limited to, software requirements engineering, cryptography, parallel algorithm development and analysis. May be repeated for credit with change of topic.  
Prerequisites: Varies with each topic.  
Recommended: Varies with each topic.  
Lecture + Lab + Other: 1-4 + 0 + 0
CS F681  Topics in Computer Graphics  
3 Credits  
Offered Spring  
Hardware, software and techniques used in computer graphics taken from topics such as refresh, storage, raster scan technology, volume rendering, particle systems, shading, image processing, computer aided design, video effects, animation and virtual environments.  
Prerequisites: CS F481 and MATH F314.  
Lecture + Lab + Other: 3 + 0 + 0  

CS F690  Graduate Seminar and Project  
1-6 Credits  
Offered Fall  
First semester of a two-semester seminar in which students will, individually or in teams, work on and present the results of major programming or literature survey projects in computer science or software engineering. Written and oral reports will be required.  
Prerequisites: 12 credits in graduate computer science or software engineering courses; or permission of Computer Science or Software Engineering graduate advisor.  
Cross-listed with SWE F690.  
Lecture + Lab + Other: 1-6 + 0 + 0  

CS F691  Graduate Seminar and Project  
3 Credits  
Offered Spring  
Second semester of a two-semester seminar in which students will, individually or in teams, work on and present the results of major programming or literature survey projects in computer science or software engineering. Written and oral reports will be required.  
Prerequisites: CS F690; 12 credits in graduate computer science or software engineering courses; or permission of Computer Science or Software Engineering graduate advisor.  
Lecture + Lab + Other: 3 + 0 + 0  

CS F692  Seminar  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0  

CS F698  Non-Thesis Research/Project  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

CS F699  Thesis  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

Construction Management (CM)  

CM F123  Codes and Standards  
3 Credits  
Offered As Demand Warrants  
Provides an introduction and overview of the fundamental provisions of the building codes used for plan review, life-safety evaluation of buildings, and community development.  
Prerequisites: CM F102; DRT F170.  
Lecture + Lab + Other: 3 + 0 + 0  

CM F142  Mechanical and Electrical Technology  
3 Credits  
Offered As Demand Warrants  
Introduces the basic mechanical and electrical systems required in all buildings for the safety, health, comfort, and convenience of the occupants. Emphasizes design criteria, code requirements and interpretation of construction drawings.  
Lecture + Lab + Other: 3 + 0 + 0  

CM F163  Building Construction Cost Estimating  
3 Credits  
Offered As Demand Warrants  
Presents methods and techniques for preparing accurate cost estimates for building construction projects. Emphasizes quantity surveys, productivity, bidding and negotiation procedures, and cost control systems.  
Prerequisites: CM F102; DRT F170; MATH F151X.  
Lecture + Lab + Other: 2 + 2 + 0  

CM F201  Construction Project Management  
3 Credits  
Offered As Demand Warrants  
Examines construction project management methods and processes. Includes project delivery systems, contract agreements, contract general and supplementary conditions and contract administration procedures.  
Prerequisites: CM F102; DRT F170.  
Lecture + Lab + Other: 3 + 0 + 0  

CM F202  Project Planning and Scheduling  
3 Credits  
Offered As Demand Warrants  
Examines concepts and methods for planning and scheduling of construction projects. Includes identifying work elements, analyzing resources, determining activity durations, preparing CPM schedules using computer scheduling software, preparing schedule updates and analyzing planning versus actual progress for cost control.  
Prerequisites: CM F201; MATH F152X.  
Lecture + Lab + Other: 2 + 2 + 0  

CM F205  Construction Safety  
3 Credits  
Offered As Demand Warrants  
Examines safety and health practices for the construction industry. Includes developing and implementing construction project site-specific safety plans, analyzing the laws and regulations that govern safety, evaluating construction site hazards and environmental conditions and incident investigation and reporting.  
Prerequisites: CM F201.  
Lecture + Lab + Other: 3 + 0 + 0
CM F213  Civil Technology  
3 Credits  
Offered As Demand Warrants  
Outlines elements of civil design, including soils and soil mechanics, foundations, roads, and utilities using local, state and federal regulations. Students will also be introduced to elements of construction surveying.  
Prerequisites: CM F102.  
Lecture + Lab + Other: 3 + 0 + 0

CM F231  Structural Technology  
3 Credits  
Offered As Demand Warrants  
Examines structural theory and the physical principles that underlie structural behavior. Includes the use of materials in a manner to maintain structural stability against such natural forces as gravity, wind, snow and earthquakes. Covers connection detailing and code requirements for wood, steel and reinforced concrete.  
Prerequisites: CM F102.  
Lecture + Lab + Other: 3 + 0 + 0

CM F263  Civil Construction Cost Estimating  
3 Credits  
Offered As Demand Warrants  
Presents methods and techniques for preparing accurate cost estimates for earthwork, roads, highways, underground utilities and site work. Emphasizes quantity surveys, unit costs, production factors, bidding and construction equipment management.  
Prerequisites: CM F213; MATH F152X.  
Lecture + Lab + Other: 2 + 2 + 0

CM F299  Construction Management Internship  
3 Credits  
Offered As Demand Warrants  
Places students in building construction offices related to student’s educational program and occupational objectives. Direct supervision by contractor professional, program faculty and Career Services coordinator.  
Prerequisites: Department approval.  
Lecture + Lab + Other: 0 + 0 + 225

Construction Trades Technology (CTT)

CTT F100  Construction Technology Core  
3 Credits  
Offered As Demand Warrants  
Basic construction techniques using OSHA approved standards by stressing how to follow safe work practices and procedures, how to safely use hand and power tools, how to extract information from construction blueprints and drawings, good housekeeping habits, and material handling on the construction site. This course is divided into six modules. Each module must be successfully completed. May be repeated twice for credit. (Alternative: CTT F101; CTT F102; CTT F103; CTT F104.)  
Lecture + Lab + Other: 2.5 + 1.5 + 0

CTT F101  Basic Construction Safety  
1 Credit  
Offered As Demand Warrants  
Introduction to basic construction safety using OSHA approved standards. Focus is on safe work practices and procedures, the proper inspection of safety equipment before use and the proper use of safety equipment. (Alternative to CTT F100 when taken with CTT F102; CTT F103; CTT F104.)  
Lecture + Lab + Other: 1 + 0.5 + 0

CTT F102  Introduction to Hand and Power Tools  
1 Credit  
Offered As Demand Warrants  
Introduction to basic hand and power tools used in construction and maintenance and the importance of their care and use. Valuable safety information for each type of tool is discussed. Understanding proper usage helps trainees to prevent accidents. Some specialty tools used by different crafts are also introduced. (Alternative to CTT F100 when taken with CTT F101; CTT F103; CTT F104.)  
Prerequisites: CTT F101.  
Lecture + Lab + Other: 0.5 + 1 + 0

CTT F103  Introduction to Blueprint Reading  
1 Credit  
Offered As Demand Warrants  
Introduction to basic blueprint terms, components and symbols. Different types of construction drawings commonly used on job sites and why each type of drawing is important will be presented. Standardized information contained on blueprints such as identification, revision status, symbols, project titles, dimension and scale will be covered. (Alternative to CTT F100 when taken with CTT F101; CTT F102; CTT F104.)  
Prerequisites: CTT F102.  
Lecture + Lab + Other: 1 + 1 + 0

CTT F104  Basic Communication and Employability Skills  
2 Credits  
Offered As Demand Warrants  
Techniques for communicating effectively with co-workers and supervisors. Includes critical thinking and problem-solving skills and reviews effective relationship skills, effective presentation and key workforce issues such as sexual harassment, stress and substance abuse. (Alternative to CTT F100 when taken with CTT F101; CTT F102; CTT F103.)  
Prerequisites: CTT F103.  
Lecture + Lab + Other: 2 + 0 + 0

CTT F106  Construction Mathematics  
3 Credits  
Offered As Demand Warrants  
Introduction to basic mathematical procedures commonly used in the construction and maintenance crafts. Includes multiplication, subtraction, addition, division, working with fractions and measuring areas, volume and capacity of shapes.  
Lecture + Lab + Other: 3 + 0 + 0

CTT F110  Residential Carpentry I  
8.5 Credits  
Offered As Demand Warrants  
Introduction to basic materials and framing techniques used in the construction trades. Includes an orientation, introduction to materials and advanced tools used in the trades. Includes techniques used in framing a structure and to exterior doors and windows commonly installed on construction projects and their proper installation. This course is divided into seven modules. Each module must be successfully completed. (Alternative: CTT F111; CTT F112; CTT F113; CTT F114.)  
Prerequisites: CTT F100.  
Lecture + Lab + Other: 5 + 7 + 0
**CTT F111** Materials and Tools Used in the Trade
2.5 Credits
Offered As Demand Warrants
Examines the sources and uses of various softwoods and hardwoods, the grading system for lumber and plywood, composition and uses of various engineered sheet materials and laminated lumber products and the many kinds of fasteners and adhesives used with wood and masonry construction. Expands on the hand and power tool information provided in the construction technology core and introduces the carpentry trainee to additional tools used in the carpentry trade. (Alternative to CTT F110 when taken with CTT F112; CTT F113; CTT F114.)
Prerequisites: CTT F100.
Lecture + Lab + Other: 2 + 1 + 0

**CTT F112** Floor Systems, Wall and Ceiling Framing
2 Credits
Offered As Demand Warrants
Focuses on framing basics. Includes the procedures for laying out and constructing a wood floor using common lumber as well as engineered building materials, procedures for laying out and framing walls and ceilings, roughing in doors and window openings, construction corners and partition Ts, bracing walls and ceilings, and applying sheathing. (Alternative to CTT F110 when taken with CTT F111; CTT F113; CTT F114.)
Prerequisites: CTT F111.
Lecture + Lab + Other: 1 + 2 + 0

**CTT F113** Roof Framing, Windows and Exterior Doors
2 Credits
Offered As Demand Warrants
Describes the various kinds of roofs and instructions for laying out rafters for gable roof, hip roof and valley intersections. Includes both stick built and truss built roofs, various types of windows, skylights, exterior doors, and instructions for installing weather stripping and lock sets. (Alternative to CTT F110 when taken with CTT F111; CTT F112; CTT F114.)
Prerequisites: CTT F112.
Lecture + Lab + Other: 1 + 2 + 0

**CTT F114** Introduction to Concrete Materials and Forms
2 Credits
Offered As Demand Warrants
Introduction to various cements and other materials which when mixed form various types of concrete. Includes concrete volume estimates, concrete tests, concrete curing methods, reinforcement materials such as rebar, bar supports and welded-wire fabric and tasks in the construction of foundations and flat work. (Alternative to CTT F110 when taken with CTT F111; CTT F112; CTT F113.)
Prerequisites: CTT F113.
Lecture + Lab + Other: 1 + 2 + 0

**CTT F115** Residential Carpentry--Level II
12 Credits
Offered As Demand Warrants
This course builds upon the skills learned in CTT F110. Includes methods and techniques used to locate structures and install exterior siding and related element protection. Various types of roofing and installation of those materials, types and methods of drywall and its installation and interior finish applications. This course is divided into eleven modules. Each module must be successfully completed. (Alternative: CTT F116; CTT F117; CTT F118; CTT F119.)
Prerequisites: CTT F110.
Lecture + Lab + Other: 6 + 12 + 0

**CTT F116** Reading Plans and Site Layout--Level I
2 Credits
Offered As Demand Warrants
This course builds upon CTT F110. Introduces the principles, equipment and methods used to perform site layout tasks of distance measurements, differential leveling and the site layout responsibilities of individuals on the site. (Alternative to CTT F115 when taken with CTT F117; CTT F118; CTT F119.)
Prerequisites: CTT F110.
Lecture + Lab + Other: 1 + 2 + 0

**CTT F117** Exterior Finish and Moisture Protection
2 Credits
Offered As Demand Warrants
Introduction to materials and installation techniques used in various types of siding. Includes the installation procedures and basic requirements for insulation, moisture control and ventilation. (Alternative to CTT F115 when taken with CTT F116; CTT F118; CTT F119.)
Prerequisites: CTT F116.
Lecture + Lab + Other: 2 + 2 + 0

**CTT F118** Roofing, Stairs and Metal Studs Applications
3 Credits
Offered As Demand Warrants
Introduction to materials and installation techniques for a number of basic types of roofing. Includes installation techniques of stairs and metal studs. (Alternative to CTT F115 when taken with CTT F116; CTT F117; CTT F119.)
Prerequisites: CTT F117.
Lecture + Lab + Other: 2 + 2 + 0

**CTT F119** Drywall and Interior Finish Applications
5 Credits
Offered As Demand Warrants
Introduction to materials, tools and procedures used to install and finish gypsum drywall on walls and ceilings and to correct drywall finishing problems. Includes installation of various types of doors and their related hardware in several types of walls, materials, tools and procedures used to lay out, install, and maintain suspended ceilings and the different types of trim. (Alternative to CTT F115 when taken with CTT F116; CTT F117; CTT F118.)
Prerequisites: CTT F118.
Lecture + Lab + Other: 2 + 6 + 0

**CTT F121** Train the Trainer
2 Credits
Program journeypersons are needed to transfer their skills to younger workers and this program will provide the skilled person with an intense series of discussions related to teaching strategies, classroom management and leadership, group dynamics and evaluation of training. Program completers may qualify for adjunct status with UAF.
Prerequisites: Skilled journeyperson in specific skill area.
Lecture + Lab + Other: 2 + 0 + 0

**CTT F130** Introduction to Facilities Maintenance
1 Credit
Offered As Demand Warrants
Provides students with basic safety instruction of hand and power tools and chemicals used in the facilities maintenance occupation in accordance with Federal OSHA regulations. The students will be instructed in the safe work practices of Personal Protective Equipment (PPE) requirements which support awareness of job-site hazards and protections, such as lockout/tag out and hazardous communications.
Lecture + Lab + Other: 0.5 + 1 + 0
CTT F131  Interior Repairs: Drywall, Woodwork Trim, Window Replacement
1 Credit
Offered As Demand Warrants
Provides students with basic theory of drywall repair (removing, replacing, texturing and painting). Special tools will be used in applying trim to ceilings, walls and door frames. Instruction will be given in selecting, cutting and fastening trim, removing and replacing damaged windows, replacing opening and closure mechanisms and in reapplying trims and paintings.
Lecture + Lab + Other: 0.5 + 1 + 0

CTT F132  Flooring Installation: Vinyl, Wood and Parquet
1 Credit
Offered As Demand Warrants
Introduces students to concepts and practical applications of installing vinyl, wood and parquet floor coverings. Students will learn how to install underlayment, vinyl flooring tiles, trim and baseboard components, as well as, use special tools for correctly installing parquet flooring with subflooring installation.
Lecture + Lab + Other: 0.5 + 1 + 0

CTT F133  Cabinet Installation with Countertops
1 Credit
Offered As Demand Warrants
Provides students with basic concepts of installing cabinets with countertops and identify different types of cabinet construction (stock, semi-custom and custom built). Students will be shown different types of wood products and be introduced to special tools. Face-to-face instruction and practical application of different techniques of installing base cabinets and top or wall cabinets will be shown.
Lecture + Lab + Other: 1 + 0 + 0

CTT F134  Garbage Disposal Installation
1 Credit
Offered As Demand Warrants
Introduces students to the process/procedure of preparing and installing garbage disposals in a basic kitchen cabinet. Students will learn how to use special tools in connecting drain and waste piping and venting systems from a house unit. Students will review safety issues related to the proper handling of plumbing hand and power tools in the installation process.
Lecture + Lab + Other: 0.5 + 1 + 0

CTT F135  Boiler Troubleshooting and Burner Repair
2 Credits
Offered As Demand Warrants
Focuses on the basic components of boilers and burners used in industry for heating residential and commercial properties. Key concepts and strategies related to the process and safety operations of combustion, boiler thermodynamics, control systems, fuel pumps, ignition systems, draft and venting principles and boiler operation according to hydronic principals and Alaska code.
Lecture + Lab + Other: 0 + 0 + 0

CTT F136  Landscaping and Horticulture
2 Credits
Offered As Demand Warrants
Introduces students to the process/procedure of preparing and landscaping a grounded area. Students will be introduced to concepts of placement of appropriate plants and vegetation, maintenance of edged and mowed lawn area, weed and fertilization control and watering schedules.
Lecture + Lab + Other: 2 + 0 + 0

CTT F137  Appliance Troubleshooting and Repair
2 Credits
Offered As Demand Warrants
Provides students with practical applications in troubleshooting and repairing appliances. Students will be instructed in diagnostic skills that support repairing and replacing components in various equipment such as refrigerators, washing machines, dishwashers, clothes dryer and oven and cook-tops.
Lecture + Lab + Other: 2 + 0 + 0

CTT F138  Residential Heating Controls
2 Credits
Offered As Demand Warrants
Provides conceptual and practical applications for students wishing to become a residential heating control technician. Topics will explore diagnosis of equipment problems in operation, testing and adjusting conventional and electronic thermostats. Students will also receive instruction on the operation of common electrical and electronic circuits used to control residential heating systems.
Recommended: Instructor approval if student has not taken CTT courses.
Lecture + Lab + Other: 0 + 0 + 0

CTT F139  Introduction to Plumbing Tools and Drawings
1 Credit
Offered As Demand Warrants
Introduces students to the various types of tools used in the plumbing industry. Includes the basics of reading plumbing blueprints and drawings and specific plumbing drawings such as isometric and oblique pictorial drawings, orthographic drawings and schematic drawings. (Alternative: CTT F151 when taken with CTT F152; CTT F153; and CTT F154.)
Prerequisites: CTT F110.
Lecture + Lab + Other: 3 + 2 + 0

CTT F140  Plumbing--Level I
4 Credits
Offered As Demand Warrants
Provides students with basic knowledge of installing plumbing systems in residential dwellings. (Alternative to CTT F150 when taken with CTT F152; CTT F153; and CTT F154.)
Prerequisites: CTT F110; CTT F153; and CTT F154.
Lecture + Lab + Other: 0 + 0 + 0

CTT F141  Plumbing--Level II
4 Credits
Offered As Demand Warrants
Provides students with basic knowledge of installing plumbing systems in commercial establishments. (Alternative to CTT F150 when taken with CTT F152; CTT F153; and CTT F154.)
Prerequisites: CTT F110; CTT F152; and CTT F154.
Lecture + Lab + Other: 2 + 0 + 0

CTT F142  Plumbing--Level III
4 Credits
Offered As Demand Warrants
Provides students with basic knowledge of installing plumbing systems in institutional occupancies. (Alternative to CTT F150 when taken with CTT F152; CTT F153; and CTT F154.)
Prerequisites: CTT F110; CTT F152; and CTT F154.
Lecture + Lab + Other: 2 + 0 + 0

CTT F143  Introduction to Plumbing Tools and Drawings
1 Credit
Offered As Demand Warrants
Introduces students to the various types of tools used in the plumbing industry. Includes the basics of reading plumbing blueprints and drawings and specific plumbing drawings such as isometric and oblique pictorial drawings, orthographic drawings and schematic drawings. (Alternative: CTT F151 when taken with CTT F152; CTT F153; and CTT F154.)
Prerequisites: CTT F110.
Lecture + Lab + Other: 3 + 2 + 0

CTT F151  Introduction to Plumbing Tools and Drawings
1 Credit
Offered As Demand Warrants
Introduces students to the various types of tools used in the plumbing industry. Includes the basics of reading plumbing blueprints and drawings and specific plumbing drawings such as isometric and oblique pictorial drawings, orthographic drawings and schematic drawings. (Alternative: CTT F151 when taken with CTT F152; CTT F153; and CTT F154.)
Prerequisites: CTT F110.
Lecture + Lab + Other: 1 + 0.5 + 0

CTT F152  Appliance Troubleshooting and Repair
2 Credits
Offered As Demand Warrants
Provides students with conceptual and practical applications in troubleshooting and repairing appliances. Students will be instructed in diagnostic skills that support repairing and replacing components in various equipment such as refrigerators, washing machines, dishwashers, clothes dryer and oven and cook-tops.
Lecture + Lab + Other: 2 + 0 + 0

CTT F153  Plastic and Copper Pipe and Fittings
1 Credit
Offered As Demand Warrants
Introduces students to the process/procedure of preparing and installing plastic and copper pipe and fittings used in the plumbing industry. Includes the basics of joining plastic and copper pipe and fittings and various fittings commonly found in commercial and residential residential dwellings. (Alternative: CTT F151 when taken with CTT F152; CTT F153; and CTT F154.)
Prerequisites: CTT F152.
Lecture + Lab + Other: 0.5 + 1 + 0
CTT F154  Fixtures, Faucets and Venting Systems  
1 Credit  
Offered As Demand Warrants  
Covers the various types of fixtures plumbers install, including sinks, bathtubs, water closets, garbage disposals, dishwashers and mop basins. An overview of the drain, waste and vent system from inside the building, where the liquid drains into pipes, to the sewers and waste treatment plants. (Alternative to CTT F150 when taken with CTT F151; CTT F152; CTT F153.)  
Prerequisites: CTT F153.  
Lecture + Lab + Other: 0.5 + 1 + 0

CTT F155  Plumbing--Level II  
8 Credits  
Offered As Demand Warrants  
Introduction to basic plumbing techniques, math, hand and power tools, extraction of information from construction drawings and materials used in the plumbing trade. This course is divided into thirteen modules. Each module must be successfully completed. Generally, each will have two components, a written exam and a hands-on competency test. (Alternative: CTT F156; CTT F157; CTT F158; CTT F159.)  
Prerequisites: CTT F150.  
Lecture + Lab + Other: 4.5 + 7 + 0

CTT F160  Photovoltaic Systems I  
5 Credits  
Offered As Demand Warrants  
This course is a practical introduction to electric power generation through photovoltaic cells. During this course the student will build a solar panel to understand its operation, installation and maintenance.  
Prerequisites: CTT F106 and CTT F100.  
Lecture + Lab + Other: 4 + 2 + 0

CTT F161  Photovoltaic Systems II  
5 Credits  
Offered As Demand Warrants  
This course covers practical methods of installing photovoltaic systems in residential settings. The students will also learn basic troubleshooting techniques.  
Prerequisites: CTT F160.  
Lecture + Lab + Other: 4 + 2 + 0

CTT F170  Residential Electrical--Level I  
9 Credits  
Offered As Demand Warrants  
Introduction to basic electrical techniques, electrical theory and extraction of information from construction drawings, tools, and materials used in the electrical trades. Course is divided into twelve modules. Each module must be successfully completed. (Alternative: CTT F171; CTT F172; CTT F173; CTT F174.)  
Prerequisites: CTT F115.  
Lecture + Lab + Other: 8 + 2 + 0

CTT F171  Electrical Safety and Electric Theory  
2 Credits  
Offered As Demand Warrants  
Course covers the safety rules as applied to handling and working with electrical systems and circuits. Includes the required OSHA mandated lockout/tag out procedure, basic electric theory and circuit calculations involving the application of Ohm’s and Kirchoff’s laws. The student is made aware of precautions to take for various electrical hazards found on the job site. (Alternative to CTT F170 when taken with CTT F172; CTT F173; CTT F174.)  
Prerequisites: CTT F115.  
Lecture + Lab + Other: 2 + 0 + 0

CTT F172  Alternating Current, Electrical Test Equipment and the NEC  
2 Credits  
Offered As Demand Warrants  
Introduction to the principles of alternating current and the operation and applications of various types of electrical test equipment. Includes National Electrical Code. (Alternative to CTT F170 when taken with CTT F171, CTT F173; CTT F174.)  
Prerequisites: CTT F171.  
Lecture + Lab + Other: 2 + 0 + 0

CTT F175  Residential Electrical--Level II  
8 Credits  
Offered As Demand Warrants  
Introduction to basic electrical techniques, electrical theory and extraction of information from construction drawings, tools and materials used in the electrical trades. This course is divided into ten modules. Each module must be successfully completed. (Alternative: CTT F176; CTT F177; CTT F178; CTT F179.)  
Prerequisites: CTT F170.  
Lecture + Lab + Other: 4 + 8 + 0

CTT F199  Student Practicum I  
1-3 Credits  
Offered As Demand Warrants  
Provides the student the opportunity to practice and develop the skills learned in the classroom. Skills will be developed under the guidance of journeyman and/or qualified personnel on the job site. Course may be repeated twice for a total of three credits.  
Prerequisites: CTT F115.  
Lecture + Lab + Other: 0 + 2-6 + 0

CTT F240  Introduction to Project Development for Tribal Residential Construction  
3 Credits  
Offered As Demand Warrants  
This course introduces the roles and responsibilities of project managers who manage and supervise the construction of housing projects in rural Alaska. Because they are funded predominantly by the U.S. Department of Housing and Urban Development (HUD) through the Native American Housing Assistance and Self-Determination Act (NAHASDA), projects conducted by rural housing authorities and tribal organizations have unique planning and administrative requirements. Project managers working in rural Alaska also require specialized training due to complicating factors such as problematic soil conditions, materials availability, transportation and other logistical challenges, and variable workforce capacity. Students will gain skills in developing plans and specifications for rural construction projects, ensure building codes are met during project development, and learn processes and materials unique to isolated locations with limited services.  
Prerequisites: CIOS F150, CTT F106, Certificate in Construction Trades Technology.  
Lecture + Lab + Other: 3 + 0 + 0
### CTT F241  Introduction to Estimating, Cost Control, and Quality Control for Tribal Residential Construction
3 Credits
Offered As Demand Warrants
This course builds upon the skills obtained in CTT F240 by introducing the roles and responsibilities of project managers relative to project scheduling, estimating, cost control and quality control. Because they are funded predominately by the U.S. Department of Housing and Urban Development (HUD) through the Native American Housing Assistance and Self-Determination Act (NAHASDA), projects conducted by rural housing authorities and tribal organizations have unique planning and administrative requirements. Students will learn to use project scheduling and cost control tools which incorporate these requirements and that have been developed for and proven effective in the management of residential construction projects in rural Alaska. Complicating factors for rural Alaska projects such as materials availability, transportation and other logistical challenges, variable workforce capacity, and complex political environment as they relate to project estimating, cost control and quality assurance will also be discussed.

**Prerequisites:** CTT F240, Certificate in Construction Trades Technology.

**Lecture + Lab + Other:** 3 + 0 + 0

### CTT F250  Current Topics in Construction Trades
1-3 Credits
Offered As Demand Warrants
Various topics of current interest in the Construction Trades. Topics announced prior to each semester. Course may be repeated for credit.

**Prerequisites:** CTT F100.

**Recommended:** CTT F106.

**Lecture + Lab + Other:** 1-3 + 0.5-1.5 + 0

### CTT F299  Student Practicum II
1.5 Credits
Offered As Demand Warrants
Provides the student the opportunity to practice and develop the skills learned in the classroom. Skills will be developed under the guidance of journeyman and/or qualified personnel on the job site.

**Prerequisites:** CTT F155.

**Lecture + Lab + Other:** 0 + 3 + 0

### COUN F601  Research in Counseling and Educational Settings
3 Credits
Offered As Demand Warrants
Provides an in-depth understanding of research occurring in educational and behavioral healthcare settings. Provides basic knowledge in utilizing needs assessment and program evaluation to guide program planning and evaluate effectiveness. Addresses basic qualitative, quantitative and mixed methods research designs. Addresses knowledge and skills for becoming critical consumers of research in education and behavioral healthcare settings.

**Prerequisites:** Admittance to Counseling program or School Counseling Certification program.

**Lecture + Lab + Other:** 3 + 0 + 0

### COUN F615  Foundations of Counseling
3 Credits
Offered Fall As Demand Warrants
Introduction to the philosophies, organization, patterns and techniques that aid counselors in preparing clients for responsible decision-making in modern society.

**Prerequisites:** Admittance to Counseling program or School Counseling Certification program.

**Lecture + Lab + Other:** 3 + 0 + 0

### COUN F623  Counseling Theories and Applications I
3 Credits
Offered As Demand Warrants
A survey of the major theoretical systems of counseling and psychotherapy combined with a laboratory experience focused on building microskills in counseling. Specific application of theoretical principles will be investigated, analyzed and described.

**Prerequisites:** Admittance to Counseling Program or School Counseling Certification program.

**Lecture + Lab + Other:** 3 + 2 + 0

### COUN F627  Developmental Interventions
3 Credits
Offered Spring
Designed to give students an opportunity for limited practice in applying developmental theory to work with children and youth. Attention is placed on assisting children and youth to accomplish developmental tasks appropriate to their psychological growth.

**Prerequisites:** COUN F623; admittance to the counseling program.

**Lecture + Lab + Other:** 3 + 0 + 0

### COUN F628  Child and Adolescent Development
3 Credits
Offered Fall
Focus on developmental processes and sequences of change that children experience within each developmental domain from birth through adolescence.

**Prerequisites:** Admittance to Counseling program or School Counseling Certification program.

**Lecture + Lab + Other:** 3 + 0 + 0
COUN F629  Counseling Interventions for Adults
3 Credits
Offered Spring
Examines various intervention strategies for working primarily with adult individuals in a variety of situations. Attention is placed on assisting adults in accomplishing developmental tasks appropriate to their psychosocial growth. Descriptive intervention techniques with respect to assessing individuals in crisis will be discussed and strategies for handling those crises situations will be examined.
Prerequisites: COUN F623; admittance to the Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F630  Appraisal for Counselors
3 Credits
Offered Fall and Spring
Introduction to the kinds of assessment information school and community counselors utilize in the assessment process.
Prerequisites: COUN F623; admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F632  Career Development
3 Credits
Offered Spring
An introduction to the theories of career development, career choices and how to translate theory into practice. Emphasis will be on career education development and the utilization of information resources for facilitating the career choice decision-making process.
Prerequisites: COUN F615; admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F634  Practicum
3 Credits
Offered As Demand Warrants
Supervised practice in basic counseling skills and techniques. Supervised work with one-on-one counseling relationships. Actual practice in listening, problem identification, goal setting and session management.
Prerequisites: COUN F623; admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 2 + 7 + 0

COUN F635  Field Practicum
3 Credits
Offered As Demand Warrants
Field practicum serves as the first external training placement in the Counseling program's practicum and internship training series. This placement offers the counselor-in-training introductory exposure, experience and supervised practice in the broad scope of activities engaged in by either fully credentialed school counselors or licensed professional counselors.
Prerequisites: COUN F634; admittance to the Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 0 + 0 + 5

COUN F636  Internship I
3 Credits
Offered Fall; Spring; Summer As Demand Warrants
Supervised practice in school or community setting. Focus on directed practice of particular skills relevant to the counselor’s role. Weekly seminars will cover actual and role playing situations providing opportunities to operationalize theory in counseling, interventions and ethical issues.
Prerequisites: COUN F634; admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 20

COUN F638  Adult Development
3 Credits
Offered Spring As Demand Warrants
An overview of physical, cognitive, personality and social development across the adult life span, from high school graduation through death. Major theories and research findings in the field of adult development are explored with an emphasis on examining how individuals progress through a series of predictable stages during their lifetime.
Prerequisites: COUN F615; admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F646  School Counseling
3 Credits
Offered Fall
Topics related to the role of the school counselor such as consultation, career guidance and culturally appropriate assessment.
Prerequisites: COUN F623; admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 3 + 0

COUN F647  Professional Ethics
3 Credits
Offered Fall; Spring
The ethical standards of the American Counseling Association and the American School Counseling Association will be examined, discussed and compared. Students will be provided with opportunities to apply these general principles to specific cases. Students will be expected to demonstrate knowledge of the principles of these ethical codes in practice.
Prerequisites: Admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F650  Multicultural Psychopathology
3 Credits
Offered Fall
An overview of contemporary perspectives on child and adult psychological disorders from the perspective of cultural psychology. Fundamentals of therapeutic interviewing. Training in use of the DSM-IV diagnostic system. Examination of the role of culture, ethnicity, gender and social class in symptom formation and the experience of illness, and critical examination of these issues in clinical application of the DSM-IV. Training in DSM-IV cultural formulation.
Prerequisites: PSY F345; COUN F623; admittance to the Counseling program or School Counseling Certification program.
Cross-listed with PSY F650.
Lecture + Lab + Other: 3 + 0 + 0
COUN F561 Counseling for Addictions
3 Credits
Offered Spring
An in depth analysis of the theoretical models explaining addiction, guiding treatment and supporting recovery. The physiological, psychological and behavioral influences of various substances and addictions and their associated classifications, are addressed. Particular attention is given to the most common substances of use in Alaska as well as rural communities in circumpolar north and the United States.
Prerequisites: COUN F650; admittance to counseling program or school counseling certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F660 Multicultural Counseling
3 Credits
Offered Spring; As Demand Warrants
An examination of cultural and ethnic variables in human nature and their effect on the counseling process. Specific focus will be placed on the nature and function of culture, cultural variables in the context of the human experience, universal and culture specific aspects of the counseling process, barriers to effective cross-cultural counseling, specific ethnic and cultural considerations, and methods of intellectual training with special emphasis on Alaskan applications.
Prerequisites: Admittance to the Counseling program; or School Counseling Certification program.
Cross-listed with PSY F661.
Lecture + Lab + Other: 3 + 0 + 0

COUN F666 Family and Couples Counseling
3 Credits
Offered Spring
Survey of concepts and theories of function and dysfunction in the area of couples and families as social networks. Introduction to the skills necessary for intervention in these systems.
Prerequisites: COUN F623; admittance to the Counseling program; or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F667 Ethnicity and Family Studies
3 Credits
Offered Spring
This course is designed to focus on the contribution of ethnic background to family makeup and functioning. Major ethnic groups are studied along with the counseling, social justice, and advocacy approaches appropriate to each. In a similar fashion, the overarching cultural context of relationships, including factors such as age, gender, sexual orientation, religious and spiritual values, mental and physical characteristics, education, family values, socioeconomic status, and within group as well as between as between group cultural differences are examined. Theories of multicultural counseling, and systems-oriented intervention strategies (couple, family, group, and community) are considered. Counselor cultural self-awareness and the role of counseling in eliminating biases, prejudice, oppression, and discrimination are emphasized.
Prerequisites: COUN F666.
Lecture + Lab + Other: 3 + 0 + 0

COUN F674 Group Counseling
3 Credits
Offered Summer Even-numbered Years
Kinds and types of groups with emphasis on methods, problems and skills needed in working with groups in a counseling situation.
Prerequisites: COUN F623; Admittance to the Counseling program; or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 0

COUN F686 Internship II
3 Credits
Offered Fall; Spring; Summer As Demand Warrants
Opportunity to perform all the activities that a regularly employed counselor would be expected to perform in a school or community setting. At the completion of the internship the student will be able to demonstrate knowledge and skills needed to administer school and/or community counseling services.
Prerequisites: COUN F634; COUN F636; admittance to Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 20

COUN F687 Internship III
3 Credits
Offered Fall; Spring; Summer As Demand Warrants
The course is designed to give counseling program candidates experience and supervised practice in the broad scope of activities (i.e. record keeping, individual and group counseling, information and referral, consultation, in-service and staff/faculty meetings, supervision) engaged in by either fully credentialed school counselors or licensed professional counselors.
Prerequisites: COUN F636; admittance to the Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 20

COUN F688 Internship IV
3 Credits
Offered As Demand Warrants
The course is designed to give counseling program candidates experience and supervised practice in the broad scope of activities (i.e. record keeping, individual and group counseling, information and referral, consultation, in-service and staff/faculty meetings, supervision) engaged in by either fully credentialed school counselors or licensed professional counselors.
Prerequisites: COUN F687; admittance to the Counseling program or School Counseling Certification program.
Lecture + Lab + Other: 3 + 0 + 20

COUN F692 Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

COUN F698 Non-Thesis Research/Project
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

COUN F699 Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0
Cross-Cultural Studies (CCS)

CCS F418  Cultural Atlases as a Pedagogical Strategy  (a)  
3 Credits  
The content of the course provides an in-depth look at how teachers can integrate technology and academics with oral traditions and offers a vehicle for helping communities define themselves and their unique cultural identity. Teachers will have an opportunity to guide their students through a positive collaboration with local culture-bearers, community members and educational personnel. The multimedia resources for this course provide numerous examples of cultural atlases and guidance on ways in which the rich oral traditions of Native people can be drawn upon in support of the school curriculum.  
Prerequisites: ANTH F242.  
Cross-listed with ED F419.  
Stacked with CCS F618; ED F619.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F454  Comparative Farming and Sustainable Food Systems  
3 Credits  
Offered Fall  
Principles of food systems geography and food security. Cross-cultural examination of dietary traditions, poverty, hunger, equity and food access and distribution. Comparison of multiple varieties and scales of agricultural systems in the context of social, ecological and economic sustainability. Considers Alaskan and other high-latitude food systems, including country food, wild game harvest and rural to urban nutrition transition.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.  
Cross-listed with NRM F454 and GEOG F454.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F602  Cultural and Intellectual Property Rights  
3 Credits  
Offered Spring  
Examines issues associated with recognizing and respecting cultural and intellectual property rights with respect to the documentation, publication and display of knowledge, practices, beliefs and artifacts of cultural traditions. Appropriate research principles, ethical guidelines and legal protections will be reviewed for their application to cross-cultural studies.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F604  Documenting Indigenous Knowledge  (a)  
3 Credits  
Offered Fall  
A thorough grounding in research methodologies and issues associated with documenting and conveying the depth and breadth of indigenous knowledge systems and their epistemological structures. Includes a survey of oral and literate data-gathering techniques, a review of various modes of analysis and presentation, and a practical experience in a real-life setting.  
Recommended: Graduate-level survey course in research methods.  
Cross-listed with ED F604.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F608  Indigenous Knowledge Systems  
3 Credits  
Offered Fall  
A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.  
Prerequisites: Graduate standing.  
Cross-listed with RD F608; ED F608; ANL F608.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F610  Education and Cultural Processes  
3 Credits  
Offered As Demand Warrants  
Advanced study of the function of education as a cultural process and its relation to other aspects of a cultural system. Students will be required to prepare a study in which they examine some aspect of education in a particular cultural context.  
Cross-listed with ED F610.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F611  Culture, Cognition and Knowledge Acquisition  
3 Credits  
Offered Fall  
An examination of the relationship between learning, thinking and perception in multicultural contexts. Particular emphasis will be on the implications of these relationships for schooling. Content will focus on cultural influences on perception, conceptual processes, learning, memory and problem solving. Content will also reflect concern for practical teaching problems.  
Cross-listed with ED F611.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F612  Traditional Ecological Knowledge  (a)  
3 Credits  
Offered Spring  
Examines the acquisition and utilization of knowledge associated with long-term inhabitation of particular ecological systems and adaptations that arise from the accumulation of such knowledge. Attention will be given to the contemporary significance of traditional ecological knowledge as a complement to academic fields of study.  
Prerequisites: Graduate standing.  
Cross-listed with RD F612.  
Lecture + Lab + Other: 3 + 0 + 0
CCS F613  Alaska Standards for Culturally Responsive Schools  (a)  
3 Credits  
Offered As Demand Warrants  
Guidelines, rationale and resources for adapting educational policies, programs and practices to better address the cultural well-being of the students and communities they serve. Content will be grounded in the “Alaska Standards for Culturally Responsive Schools” including standards for students, teachers, curriculum, schools and communities.  
Cross-listed with ED F613.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F616  Education and Socioeconomic Change  
3 Credits  
Offered As Demand Warrants  
An examination of social change processes, particularly in relation to the deliberate development of new institutions and resulting forms of new consciousness. Emphasis is placed on the role of education and schooling in this development dynamic.  
Cross-listed with ED F616.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F618  Cultural Atlases as a Pedagogical Strategy  (a)  
3 Credits  
The content of the course provides an in-depth look at how teachers can integrate technology and academics with oral traditions and offers a vehicle for helping communities define themselves and their unique cultural identity. Teachers will have an opportunity to guide their students through a positive collaboration with local culture-bearers, community members and educational personnel. The multimedia resources for this course provide numerous examples of cultural atlases and guidance on ways in which the rich oral traditions of Native people can be drawn upon in support of the school curriculum.  
Prerequisites: ANTH F242.  
Cross-listed with ED F619.  
Stacked with CCS F418; ED F419.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F631  Culture, Community and the Curriculum  (a)  
3 Credits  
Offered Fall  
Salient issues involved with the development of effective programs of instruction in small schools, including foundational design, conceptual models, organizational strategies, technical skills, current issues and trends, and their implications and application to the environment of rural Alaska.  
Cross-listed with ED F631.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F656  Sustainable Livelihoods and Community Well-being  
3 Credits  
Offered Fall  
Review the basic principles that govern the sustainability of systems and look at the cultural practices and individual behaviors that enhance or degrade sustainable livelihoods and community well-being. Emphasis is on understanding the historical context of ideas about sustainability, on understanding the nature and magnitude of the social, economic and ecological dimensions of contemporary change, and the "best practices" currently in place for communities to respond effectively to change.  
Prerequisites: Graduate standing.  
Cross-listed with NRM F656 and GEOG F656.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F690  Seminar in Cross-cultural Studies  
3 Credits  
Offered As Demand Warrants  
Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.  
Prerequisites: Advancement to candidacy and permission of student's graduate committee.  
Cross-listed with ANL F690; ED F690; RD F690.  
Lecture + Lab + Other: 3 + 0 + 0

CCS F692  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

CCS F692P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

CCS F698  Non-thesis Research/Project  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 1-12

CCS F699  Thesis  
1-12 Credits  
Lecture + Lab + Other: 1-12 + 0 + 0

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**Culinary Arts and Hospitality (CAH)**

CAH F060  Basic Techniques of Cooking I  
3 Credits  
Basics in the culinary arts field designed for students with special needs.  
Lecture + Lab + Other: 1.5 + 6 + 0

CAH F070  Basic Techniques of Cooking II  
6 Credits  
An open ended course providing an appropriate learning sequence for students with special needs.  
Lecture + Lab + Other: 3 + 12 + 0

CAH F101  Introduction to the Culinary Field  
1 Credit  
Provides an overview of the many facets of the food industry and begins the student portfolio. Students will learn culinary related math concepts; topics include basic math principles, weights and measures, recipe conversion and baking formulas. These lessons will be used throughout the culinary program.  
Lecture + Lab + Other: 1 + 3 + 0

CAH F105  Principles of Food Service I  
3 Credits  
Offered Fall, Spring, As Demand Warrants  
Food service and the principle variations which students may encounter in the industry; professional standards, kitchen safety, first aid, storeroom operation, kitchen equipment and basic culinary terminology.  
Lecture + Lab + Other: 3 + 0 + 0

CAH F117  Art in Cake Icing  
2 Credits  
The preparation of cakes for icing and decorating. Topics include borders, clowns, flowers, leaves, pattern transfer, frozen buttercream, confectionery coating, royal icing, plus designing cakes, and rolled buttercream. Use of an airbrush, flow in techniques and tiered cake assembly covered.  
Lecture + Lab + Other: 1 + 2 + 0
CAH F140  Culinary I: Principles and Techniques
4 Credits
The student learns concepts of sanitation and safety as they relate to the foodservice industry. Areas addressed include: tools, equipment, knife skills, kitchen safety, food and plate presentation, food evaluation, basic cooking principles to include moist and dry heat methods, seasonings, flavorings and aromatics, fats, emulsions, dairy products, eggs and palate development.
Prerequisites: CAH F101; CAH F150 (both may be taken concurrently).
Lecture + Lab + Other: 1 + 6 + 0

CAH F141  Culinary II: Stocks, Soups and Sauces
4 Credits
Students study and apply cooking methods of scratch cookery through small batch assignments. Areas of study include stocks, thickeners, roux based sauces to include the four mother sauces, hot and cold emulsions, butter sauces, salsas, vinaigrettes, and reductions as well as soups to include cream, clear and potage soups.
Prerequisites: CAH F140; CAH F150.
Lecture + Lab + Other: 1 + 6 + 0

CAH F145  Bakery Production I
5 Credits
Basic commercial baking skills and procedures. Standardized recipes and procedures stressed. End product critiqued daily. Emphasis on sanitary food handling practices and professional work habits.
Lecture + Lab + Other: 5 + 0 + 0

CAH F146  Introduction to Baking and Pastry
4 Credits
Students learn to apply fundamental baking skills in preparing yeast breads, quick breads, cookies, pies, pastries, cakes, custards, creams and sauces. Students will gain confidence in their abilities while learning in a professional bakery setting.
Prerequisites: CAH F101; CAH F140; CAH F150 (may be taken concurrently).
Lecture + Lab + Other: 1 + 6 + 0

CAH F150  Food Service Sanitation
2 Credits
Designed for entry-level through supervisory personnel of food service establishments. Basic microbiology, safe food handling techniques, good hygienic practices, pest control, employee training, and the Alaska laws governing food service establishments. Upon successful completion the student can earn ServSafe Managers Certification from the National Restaurant Association Education Foundation; the course also satisfies a requirement for certification with the American Culinary Federation.
Lecture + Lab + Other: 2 + 0 + 0

CAH F152  Supervisory Development
2 Credits
Problems and challenges that food service supervisors deal with every day. Development of personnel management methods.
Lecture + Lab + Other: 2 + 0 + 0

CAH F154  Food and Beverage Service
2 Credits
Introduce students to dining room and front-of-the-house operations. Students will gain competence in dining room operation and table service techniques. Students will perform duties in the dining room of our student-run restaurant. Prerequisites CAH F150. Note CAH F150 may be taken concurrently.
Lecture + Lab + Other: 0.5 + 3 + 0

CAH F160  Principles of Nutrition
2 Credits
Basic principles of nutrition with emphasis on nutrients and their function in relation to human health.
Lecture + Lab + Other: 2 + 0 + 0

CAH F161  Pastry Tube Art
1.5 Credits
Basic cake and food product techniques including borders, flowers, cake designing and proper use of pastry tube bags.
Lecture + Lab + Other: 0.5 + 2 + 0

CAH F170  Gourmet Cooking
2 Credits
Preparation and service of gourmet beef, poultry and seafood entrees for the home cook. Recipes represent new ideas in home entertainment and menus change every semester.
Lecture + Lab + Other: 2 + 0 + 0

CAH F171  Gourmet Baking
2 Credits
Preparation of a wide range of breads, pastries, fancy desserts, French pastry and simple tortes. Recipes represent traditional methods of baking along with current trends in home entertainment.
Lecture + Lab + Other: 0.5 + 3 + 0

CAH F172  Gourmet Asian Cooking
2 Credits
Preparing and serving Asian dishes. Study and use of proper cooking methods will be emphasized. Students prepare and enjoy a full meal
Lecture + Lab + Other: 0.5 + 3 + 0

CAH F174  Vegetarian Cooking
2 Credits
Preparation and service of vegetarian foods and balanced meals. Use of nourishing condiments will be explored. Recipes will include some seasonal, ethnic and gourmet foods; however the emphasis will be on preparing quick, healthful, tasty meatless meals.
Lecture + Lab + Other: 0.5 + 3 + 0

CAH F175  Protein Fabrication
3 Credits
Study focuses on the identification and fabrication of protein items to include poultry, beef, veal, pork, lamb, shellfish, and finfish. Students will be introduced to the concepts of protein cookery. Emphasis is on product fabrication to practical industry applications.
Lecture + Lab + Other: 1 + 4 + 0

CAH F176  Techniques of Healthy Cooking
2 Credits
Demonstrations of healthy cooking techniques employing limited quantities of salt, sugar and fat. Participants will explore the use of fresh herbs, acidity, seasonings and cooking methods to provide flavor in a healthy and nutritional way. Basic cooking skills and recipe utilization will be taught throughout the semester.
Lecture + Lab + Other: 0.5 + 3 + 0

CAH F177  Understanding Brewing and Fermentation
1 Credit
The student will receive an introduction to the history, science and process of brewing. Focus will be on the importance of sanitation for the home brewery, brewing traditional styles with an introduction to specialty brews. Attention will be given to the pairing of beer styles to food.
Prerequisites: Students must be 21 years of age to enroll.
Lecture + Lab + Other: 0.5 + 1 + 0
CAH F178  Intermediate Brewing and Fermentation
1 Credit
Emphasis in brewing will focus on the use of adjuncts and their specific purposes. The effects they have on the brewing/fermentation process will be paramount. Focus will be on the more advanced style of brewing called partial mash. We may, time and weather permitting, brew a batch from grain. All brews done in this class will make use of adjuncts and/or grains.
Prerequisites: CAH F177; student must be 21 years of age to enroll.
Lecture + Lab + Other: 0.5 + 1 + 0

CAH F180  Artisan Breads
2 Credits
Offered Fall
Learn the fundamentals of bread making. Take simple ingredients and transform them into handcrafted fresh-baked bread. Learn how to mix, ferment, proof, and bake like a skilled artisan baker. Explore the world of breads starting with crusty French baguettes to sourdough, ciabatta, focaccia, multigrain and much more!
Lecture + Lab + Other: 0.5 + 3 + 0

CAH F181  International Breads
2 Credits
Offered Fall
Take a culinary tour around the world. Visit all the great bread baking countries and experience the diversity each place has to offer. Flaky and buttery croissants and brioche from France, sweet and fruity panettone from Italy, fresh mocha from Japan and much more!
Lecture + Lab + Other: 0.5 + 3 + 0

CAH F199  Culinary Arts Externship
2 Credits
The student will complete a 240 hour externship. Student will begin to apply their education within the industry providing genuine experience that reflects the student’s career goals. The student will study in an approved establishment and will be evaluated by both the employer and the instructor. Enrollment in this class will be after completing the 2nd, 3rd or 4th semester.
Prerequisites: Departmental approval required.
Lecture + Lab + Other: 0 + 0 + 18

CAH F230  Menu Planning
1 Credit
The importance of the menu in various food operations. The menu is considered to be the controlling factor in both commercial and noncommercial food service operations. Using a menu as a management tool in every area of the operation from planning the facility, purchasing food items, promoting items to customers and providing excellent service to help ensure success. The student will plan and write a variety of menus.
Recommended: CAH F140; CAH F146; CAH F150.
Lecture + Lab + Other: 1 + 0 + 0

CAH F242  Culinary III: Vegetables and Starch
4 Credits
Students study and apply cooking methods of scratch cookery through small batch assignments. Areas of study include rice and grains, potato products, wheat based products to include pastas, dumplings, beans and soy products, fruits, vegetables, salads, center-of- the plate items and sandwiches. Students will continually be given the opportunity to express themselves through the art of plate presentation and garnishing.
Prerequisites: CAH F140.
Lecture + Lab + Other: 1 + 6 + 0

CAH F243  Culinary IV: A la Carte Cookery
4 Credits
Study focuses on the preparation of food items for service in a guest-centered a la carte environment. Students will work in a la carte stations to include salads, broiler, saute, expeditor, and tournant. Line cooking skills for fine dining as well as time budgeting and management will be emphasized. Students will gain proficiency in the areas of kitchen sense, mise en place, and hustle. An increased focus on the concepts of food presentation is emphasized. Projects include menu design, research and design of dishes to include plate presentation. Students plan and prepare up-scale theme menus.
Prerequisites: CAH F141, CAH F175, CAH F242.
Lecture + Lab + Other: 1 + 6 + 0

CAH F248  Intermediate Baking and Pastry
4 Credits
This course is designed to give the student an overall appreciation and increased understanding of bread and fine pastry. Students will learn to effectively produce a variety of specialty dough, pastries, and desserts such as flans, tarts, individual and miniature pastries, souffles, chocolates, plated desserts, ice cream and sugar work, tortes and mousse tortes.
Prerequisites: CAH F146, CAH F150.
Lecture + Lab + Other: 1 + 6 + 0

CAH F250  Garde Manger
4 Credits
Prerequisites: CAH F141, CAH F175, CAH F242.
Lecture + Lab + Other: 1 + 6 + 0

CAH F253  Storeroom Purchasing and Receiving
2 Credits
Purchasing and receiving methods and specifications in a variety of food operations are covered in this course. Students will gain exposure to purchasing specifications for a variety of foods, using general purchasing methods, requirements, procedures and ethics.
Lecture + Lab + Other: 2 + 0 + 0

CAH F255  Human Resource and Supervision in Hospitality
3 Credits
Approaches for effective culinary or hospitality supervision are considered in this course. Methods of recruiting, selecting, training, and evaluating personnel are covered. Team building and conflict management concepts are examined. Skills in communication, empowerment and planning are introduced. This course fulfills a requirement of certification with the American Culinary Federation.
Lecture + Lab + Other: 3 + 0 + 0

CAH F256  Restaurant and Hospitality Cost Management
2 Credits
A course designed to relate principles of calculation to the food service industry. Recipe computations, food cost estimates, cash procedures, and payroll practices are studied. Practices for controlling portions, inventories and costs are explored as they affect business operations.
Prerequisites: CAH F101.
Lecture + Lab + Other: 2 + 0 + 0
Dental Hygiene (DH)

DH F111  Dental Anatomy, Embryology and Histology
2 Credits
Offered Fall
Introduction to embryology and histology of the periodontal tissues. Includes discussion of dental accretions and cariology.
Prerequisites: Admission to the dental hygiene program or permission of department.
Lecture + Lab + Other: 2 + 0 + 0

DH F112  Techniques I for Dental Hygienists
7 Credits
Offered Fall
A pre-clinical course introducing the basic dental hygiene procedures including data gathering, patient education and basic instrumentation. Emphasis is placed on skill development in basic instrumentation and infection control.
Prerequisites: Admission to the dental hygiene program.
Lecture + Lab + Other: 3 + 8 + 0
DH F114  Anatomy of the Orofacial Structures
2 Credits
Offered Fall
Provides students with knowledge to perform technical skills within the oral cavity, especially those relating to dental screening and record-taking.
Prerequisites: Permission of department.
Lecture + Lab + Other: 2 + 0 + 0

DH F121  Periodontics I
2 Credits
Introduction to periodontal disease. Emphasis is placed on recognition of periodontal disease and treatment planning.
Prerequisites: Admission to the dental hygiene program.
Lecture + Lab + Other: 2 + 0 + 0

DH F122  Techniques II for Dental Hygienists
4 Credits
Offered Spring
Introduces adjunctive techniques used in dental hygiene treatment. Basic manipulation of dental materials. Emphasis is placed on care of materials and restorations that are encountered intra-orally during dental hygiene treatment. Radiology lab provides opportunity to develop competence in exposing radiographs on patients under direct faculty supervision.
Prerequisites: Admission to the dental hygiene program.
Lecture + Lab + Other: 2 + 4 + 0

DH F165  Introduction to Dental Pharmacology
2 Credits
Offered Fall
Introduction to general concepts of pharmacology, the nature of drug reactions, individual responses to drugs, principles of neuropharmacology, toxicology, anti-infective therapy, effect of drugs on cardiovascular, endocrine and other body systems. Emphasis is placed on drugs used in dentistry.
Prerequisites: Permission of department.
Lecture + Lab + Other: 2 + 0 + 0

DH F181  Clinical Practicum I
4 Credits
Offered Spring
Provides opportunity for the student to achieve clinical skill competency with individuals presenting themselves as periodontally healthy or with signs of gingivitis.
Prerequisites: Admission to the dental hygiene program.
Lecture + Lab + Other: 0 + 0 + 12

DH F182  Clinical Seminar I
1 Credit
Offered Spring
Discussion and evaluation of clinical experiences encountered in DH F181. Emphasis is placed on review of treatment plans and case presentation. Introduces ethical and legal concerns of the dental hygiene profession. Guest speakers, patient management and teamwork are emphasized.
Prerequisites: Admission to the dental hygiene program.
Lecture + Lab + Other: 1 + 0 + 0

DH F211  Periodontics II
2 Credits
Offered Fall
Develops familiarity with current non-surgical and surgical techniques in the treatment of periodontal disease. Nutrition and immunology as it relates to periodontal diseases are discussed. Case presentations are made by students.
Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better.
Lecture + Lab + Other: 2 + 0 + 0

DH F212  Techniques III for Dental Hygienists
3 Credits
Offered Fall
Advanced dental hygiene instruments and intra-oral techniques. Provides for discussion of patients with special needs.
Prerequisites: Completion of all F100-level dental hygiene class with a C- grade or better.
Lecture + Lab + Other: 1 + 4 + 0

DH F214  Pathology of Oral Tissues
2 Credits
Offered Fall
Includes the signs, symptoms, contagion recognition of selected diseases of the oral cavity and systemic diseases that manifest themselves in the oral cavity.
Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better; or permission of department.
Lecture + Lab + Other: 2 + 0 + 0

DH F224  Principles of Dental Health
3 Credits
Offered Spring
Provides a broad understanding of community dental health and dental epidemiology. Students develop and implement a basic community dental health project.
Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better.
Lecture + Lab + Other: 2 + 0 + 3

DH F283  Clinical Practicum II
5 Credits
Offered Fall
Provides opportunity to achieve clinical skill competency with individuals presenting themselves with mild to moderate periodontal disease. Conducted in a clinical setting with volunteer patients and individualized instruction.
Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better.
Lecture + Lab + Other: 0 + 0 + 15

DH F284  Clinical Seminar II
1 Credit
Offered Fall
Discussion and evaluation of clinical experiences encountered in DH F283. Emphasis is placed on review of treatment plans and case presentations of patients exhibiting mild to moderate periodontal disease.
Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better.
Lecture + Lab + Other: 2 + 0 + 0
Lecture + Lab + Other:

Skills to help prepare for the ACT and SAT tests. This course will review basic concepts and practice math test taking.

DEVM F053  Prealgebra
1 Credit

Basic concepts of prealgebra mathematics. Topics include operations and applications of whole numbers, integers, fractions, decimals, ratios and proportions, percents, geometry and measures, evaluation of algebraic expressions and applications.

Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better.

Lecture + Lab + Other: 0 + 0 + 18

DH F286  Clinical Seminar III
1 Credit

Offered Spring

Discussion and evaluation of clinical experiences encountered in DH F285. Emphasis is placed on review of treatment plans and case presentations of patients exhibiting mild to moderate periodontal disease.

Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better.

Lecture + Lab + Other: 2 + 0 + 0

DH F310  Oral Pain Control for Dental Hygienists
3 Credits

Offered Fall

Examines pharmacology, armamentarium, anatomical and physiological considerations, administration techniques and potential complication of local anesthetic. Analyzes pharmacology, techniques, medical contraindications and management complications accompanying administration and monitoring of nitrous oxide.

Prerequisites: Completion of all F100-level dental hygiene classes with a C- grade or better or current Alaska licensure in dental hygiene; permission of department; current certification in cardiopulmonary resuscitation.

Lecture + Lab + Other: 1.5 + 3 + 0

Developmental Math (DEVM)

DEVM F051  Math Skills Review
1 Credit

Offered As Demand Warrants

Develops and reviews basic mathematical terminology, theory and operations as outlined by the Alaska State Mathematics Standards. Mathematics topics focus on reviewing the six basic "strands" of mathematical content: numeration, measurement, estimation and computation, function and relationship, geometry, and statistics and probability. Approaches to problem solving will emphasize the process of mathematical thinking, communication and reasoning. It is an appropriate course for those preparing for the High School Qualifying Exam in Alaska or those needing a review of basic math skills in preparation for a math placement test at UAF. May be repeated for a total of three credits.

Lecture + Lab + Other: 1 + 0 + 0

DEVM F053  SAT/ACT Math Prep and Review
1 Credit

Offered As Demand Warrants

This course will review basic concepts and practice math test taking skills to help prepare for the ACT and SAT tests.

Lecture + Lab + Other: 1 + 0 + 0

DEVM F054  Prealgebra
1 Credit

This course covers one credit of DEVM F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in DEVM F054A; or appropriate placement test scores taken within one calendar year; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0

DEVM F054A  Modularized Mastery Math: Prealgebra Module A
1 Credit

This course covers one credit of DEVM F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in DEVM F054A; or appropriate placement test scores taken within one calendar year; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0

DEVM F054B  Modularized Mastery Math: Prealgebra Module B
1 Credit

This course covers one credit of DEVM F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

Prerequisites: Grade of B or better in DEVM F054A; or appropriate placement test scores taken within one calendar year; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0

DEVM F054C  Modularized Mastery Math: Prealgebra Module C
1 Credit

This course covers one credit of DEVM F054 Prealgebra and includes the following topics: identifying and solving basic linear equations involving whole numbers, integers, decimals and fractions, solving ratio and proportion problems, solving percent problems, and solving applied problems. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting. Prerequisite courses and/or placement exams must be taken within one calendar year.

Prerequisites: Grade of B or better in DEVM F054B; or appropriate placement test scores; permission of instructor required.

Lecture + Lab + Other: 1 + 0 + 0
DEVM F055  **Elementary Algebra**
3 Credits
Topics include evaluation and simplifying algebraic expressions, polynomials, factoring, integer exponents, rational expressions, solutions of linear equations and inequalities, quadratic equations and graphs of lines. Special fees apply. Prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

**Prerequisites:** DEVS F111 (may be taken concurrently); and grade of C or better in DEVM F054 or ABUS F155, or appropriate placement scores.

**Lecture + Lab + Other:** 3 + 0 + 0

DEVM F055D  **Modularized Mastery Math: Elementary Algebra Module D**
1 Credit
This course covers one credit of the DEVM F055 Elementary Algebra course and includes the following topics: simplifying algebraic expressions, solving linear equations in one variable, solving linear and compound inequalities in one variable, applications of linear equations and solving formulas. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

**Prerequisites:** Grade of B or better in DEVM F054, or ABUS F155; or appropriate placement test scores; permission of instructor required; prerequisite courses and/or placement exams must be taken within one calendar year.

**Lecture + Lab + Other:** 1 + 0 + 0

DEVM F055E  **Modularized Mastery Math: Elementary Algebra Module E**
1 Credit
This course covers one credit of the DEVM F055 Elementary Algebra course and includes the following topics: simplifying algebraic expressions, solving linear equations in one variable, solving linear and compound inequalities in one variable, applications of linear equations and solving formulas. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

**Prerequisites:** Grade of B or better in DEVM F055D taken within one calendar year; permission of instructor required.

**Lecture + Lab + Other:** 1 + 0 + 0

DEVM F055F  **Modularized Mastery Math: Elementary Algebra Module F**
1 Credit
This course covers one credit of the DEVM F055 Elementary Algebra course and includes the following topics: simplifying algebraic expressions, solving linear equations in one variable, solving linear and compound inequalities in one variable, applications of linear equations and solving formulas. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.

**Prerequisites:** Grade of B or better in DEVM F055E taken within one calendar year; permission of instructor required.

**Lecture + Lab + Other:** 1 + 0 + 0

DEVM F056  **Math Fast Track: Prealgebra/Elementary Algebra Review**
1 Credit
Offered WINTERmester MAYmester and Summer
A 20-hour intensive review of math concepts available prior to each semester. Covers prealgebra and elementary algebra topics to prepare qualified students to potentially improve their math course placement. Students should have a history of being successful in equivalent levels of math, although they may not recall enough information to place well on the placement test. Students who are successful in this class have the possibility of advancing through one or two semesters of developmental math.

**Prerequisites:** Placement into DEVM F054 or DEVM F055.

**Lecture + Lab + Other:** 1 + 0 + 0

DEVM F061  **Review of Elementary Algebra**
1 Credit
Designed to assist students in reviewing material covered by DEVM F055. Individuals who have not previously taken an elementary algebra course are recommended to enroll in DEVM F055. Available via eLearning & Distance Education only.

**Lecture + Lab + Other:** 1 + 0 + 0

DEVM F062  **Alternative Approaches to Math: Elementary Algebra**
3 Credits
Algebraic topics. Includes operations with polynomial expressions, first- and second-degree equations, graphing, integral and relational exponents, and radicals using alternative teaching styles.

**Prerequisites:** Grade of C or better in DEVM F054; or ABUS F155; or appropriate placement test scores; prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.

**Lecture + Lab + Other:** 3 + 0 + 0

DEVM F065  **Mathematics Skills**
1-3 Credits
Designed to assist students in reviewing and reinforcing course concepts covered by DEVM F054, DEVM F055, DEVM F062, DEVM F105 and DEVM F105N. Consists of instruction which may include lab instruction, individual student work or group work. May be repeated. Recommended for students who need more time and help to master the material in developmental math courses.

**Lecture + Lab + Other:** 1-3 + 0 + 0

DEVM F066  **Advanced Math Fast Track: Elementary/Intermediate Algebra Review**
1 Credit
Offered WINTERmester and MAYmester
A 20-hour intensive review of math concepts available prior to each semester. Covers elementary and intermediate algebra topics to prepare qualified students to potentially improve their math course placement. Students should have a history of being successful in equivalent levels of math, although they may not recall enough information to place well on the placement test. Students who are successful in this class have the possibility of advancing through one or two semesters of developmental math.

**Prerequisites:** Placement into DEVM F055 or DEVM F105 or DEVM F105N.

**Lecture + Lab + Other:** 1 + 0 + 0
DEVM F068  Math Essentials
4 Credits
Teaches the concepts of basic arithmetic and introductory algebra. Includes operations and properties on real numbers; ratios; proportion; percent; scientific notation; variation; topics from consumer mathematics; evaluation of literal expressions; solution and graphs of linear equations and inequalities; radicals and exponents; polynomials; factoring and special products; fundamental operations with algebraic functions; solution of quadratic equations; and elementary systems of equations. Geometric formulae are presented on a case-to-case basis as needed. Student success strategies and college readiness skills are emphasized.
Prerequisites: Appropriate placement scores required.
Lecture + Lab + Other: 4 + 0 + 0

DEVM F071  Review of Intermediate Algebra
1 Credit
Course reviews material covered by DEVM F105. Individuals who have not taken an intermediate algebra course on the high-school level are recommended to enroll in DEVM F105. Available via eLearning & Distance Education only.
Lecture + Lab + Other: 1 + 0 + 0

DEVM F105  Intermediate Algebra
3 Credits
Topics include expressions, equations and applications involving linear, quadratic, rational and radical functions; graphs of linear and quadratic functions; functions and their inverses; introduction to exponential and logarithmic functions; and systems of linear equations. To matriculate to MATH F151X from DEVM F105 a grade of B or higher is required.
Prerequisites: Grade of C- or better in DEVM F055, DEVM F062, DEVM F068, or appropriate placement scores; prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.
Lecture + Lab + Other: 3 + 0 + 0

DEVM F105G  Modularized Mastery Math: Intermediate Algebra Module G
1 Credit
This course covers one credit of the DEVM F105 Intermediate Algebra course and includes the following topics: solving systems of equations and applications, simplifying radicals and expressions with rational exponents, performing operations on radical expressions, solving radical equations and performing operations on complex numbers. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting. Prerequisite courses and/or placement exams must be taken.
Prerequisites: Grade of B or better in DEVM F055 or DEVM F069 or appropriate placement test scores; permission of instructor required.
Lecture + Lab + Other: 1 + 0 + 0

DEVM F105H  Modularized Mastery Math: Intermediate Algebra Module H
1 Credit
This course covers one credit of the DEVM F105 Intermediate Algebra course and includes the following topics: review of solving quadratic equations by factoring, solving quadratic equations that are not factorable, relations and functions, graphs and transformations of functions, quadratic functions and their graphs, performing operations on functions, compositions of functions and applications of quadratic equations and functions. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.
Prerequisites: Grade of B or better in DEVM F105G taken within one calendar year; permission of instructor is required.
Lecture + Lab + Other: 1 + 0 + 0

DEVM F105J  Modularized Mastery Math: Intermediate Algebra Module J
1 Credit
This course covers one credit of the DEVM Intermediate Algebra course and includes the following topics: solving absolute value equations and inequalities, solving linear and compound linear inequalities, solving quadratic and rational inequalities, inverse functions, exponential and logarithmic functions, properties of logarithms and solving exponential and logarithmic equations. Topics are split into mini-modules and worked until mastery is achieved. Some mini-modules may be skipped if a student already demonstrates mastery of them. Computers will be used within a structured and independent learning setting.
Prerequisites: Grade of B or better in DEVM F105H taken within one calendar year; permission of instructor required.
Lecture + Lab + Other: 1 + 0 + 0

DEVM F105N  Intensive Intermediate Algebra
4 Credits
Includes exponents, radicals, graphing, systems of equations, quadratic equations and inequalities, logarithms and exponentials and complex numbers using alternative teaching styles.
Prerequisites: DEVM F055, DEVM F055F, DEVM F062, DEVM F068, DEVM F105, DEVM F105J, or appropriate placement scores; prerequisite courses and placement scores must be taken within one calendar year.
Lecture + Lab + Other: 4 + 0 + 0

Developmental Studies (DEVS)

DEVS F052  Reading Enhancement
3 Credits
Intensive instruction in reading designed to increase vocabulary and comprehension skills necessary for successful reading in the content areas of college courses. Focus is on improved reading comprehension and vocabulary development.
Prerequisites: Appropriate placement test scores.
Lecture + Lab + Other: 3 + 0 + 0
DEVS F058  Reading Skills  
1-3 Credits  
Offered As Demand Warrants  
Course emphasis is on improving reading comprehension using texts and other materials. Focus is on paragraph structure to recognize main idea, supporting details and author's purpose. Study techniques for recognizing new vocabulary. Small groups allow individually designed course of instruction to meet the needs of the students. May be repeated.  
Prerequisites: Placement.  
Lecture + Lab + Other: 1 - 3 + 0 + 0  
DEVS F101  Skills for College and Career Success  
3 Credits  
A diverse menu of study skills for the student entering the college environment. Skills include active listening, effective reading, taking usable notes, test taking, communication, time and money management. Students learn personal development skills that assist in addressing intrusive issues that impact the learning process, increasing self-esteem, and relating these skills to the classroom and later to a career. Class sessions offer diverse learning experiences.  
Lecture + Lab + Other: 3 + 0 + 0  
DEVS F104  University Communications  
1-3 Credits  
Offered As Demand Warrants  
Introduces the unique methods of communication required at the college level, including combinations of reading, writing and oral communication as required for degree content purposes for certificate degree programs. May link with selected lecture and/or discussion courses. May be repeated for credit when content varies. Note: Does not meet prerequisite requirements for WRTG F111X without further placement testing.  
Recommended: Placement into WRTG F090.  
Lecture + Lab + Other: 1 - 3 + 0 + 0  
DEVS F105  Academic Reading for College  
3 Credits  
Strengthens academic and critical reading and literacy skills required for college-level courses. Emphasizes practice and transfer of reading and study skills that increase comprehension and retention of narrative and expository materials typically encountered in college courses, e.g. textbooks, websites, research articles, etc.  
Lecture + Lab + Other: 3 + 0 + 0  
DEVS F107  Reader-Writer Workshop  
3 Credits  
Offered As Demand Warrants  
A reader-writer workshop to develop fluency in reading and writing skills for persons whose first language is not English. Intensive speaking, listening, reading and writing activities.  
Prerequisites: Placement by examination or student decision.  
Lecture + Lab + Other: 3 + 0 + 0  
DEVS F108  Study Skills Lab  
1 Credit  
Offered As Demand Warrants  
Improvement of study skills in areas of greatest need on an individual or small group basis in the lab or other workshop or individualized format. Topics include time and stress management, listening/note taking, library research and memory. Course may be repeated for credit when content varies.  
Lecture + Lab + Other: 1 + 0 + 0  
DEVS F110  College Success Skills  
1 Credit  
An introduction and overview of the diverse skills, strategies and resources available to ensure success in the college experience. Topics include study skills, time management, career planning, stress management, communication skills, test taking and personal development skills.  
Lecture + Lab + Other: 1 + 0 + 0  
DEVS F111  Reading in the Mathematical Sciences  
1 Credit  
Will improve reading skills in math and will support students in their math class. Will provide supplemental instruction time focusing on the introduction and/or development of reading skills that will aid in solving math problems and understanding and retaining the math information delivered in the class. This course will be linked to a math course.  
Lecture + Lab + Other: 1 + 0 + 0  
DEVS F112  Reading in the Natural Sciences  
1 Credit  
Will improve student success in their current and future natural science classes. Will provide supplemental instruction time focusing on introducing and/or developing reading skills that will aid in reading, understanding, and retaining science information delivered in the natural science lecture and lab. Skills emphasized will include identifying, organizing and prioritizing topic, main idea, and details, note taking, and using effective reading to improve test performance. Must be linked to freshman level science class.  
Lecture + Lab + Other: 1 + 0 + 0  
DEVS F114  Reading in the Humanities/Social Sciences  
1 Credit  
Offered Fall  
Introduction and application of effective reading strategies for increased comprehension and retention of course content delivered via written formats, e.g., textbooks, articles, web pages, etc.  
Corequisites: Core humanities/social science course.  
Lecture + Lab + Other: 1 + 0 + 0  
DEVS F150  Life Work Planning  
1 Credit  
Planning for a satisfying career choice based on realistic assessment of self, accurate knowledge of the world of work and experience with ways to activate career plans. Enables students to evaluate potential careers and to make educational and job search plans.  
Lecture + Lab + Other: 1 + 0 + 0  
DEVS F160  The Resume: Key to Success  
1 Credit  
Use the resume writing process to develop job seeking skills: locating the hidden market; researching job potential; learning to fill out effective applications; designing and printing a custom resume; assembling a portfolio; and developing effective interview skills.  
Recommended: DEVS F150.  
Lecture + Lab + Other: 1 + 0 + 0  
DEVS F160P  The Resume: Key to Success  
1 Credit  
Use the resume writing process to develop job seeking skills: locating the hidden market; researching job potential; learning to fill out effective applications; designing and printing a custom resume; assembling a portfolio; and developing effective interview skills.  
Recommended: DEVS F150.  
Lecture + Lab + Other: 1 + 0 + 0
Lecture + Lab + Other: 3 + 0 + 0

Diesel Technology (DSLT)

DSLT F101  Safety Including Rigging and Lifting
1 Credit
Offered Fall
Materials covered will be the importance of and proper use of personal protective gear and air ventilation systems; how to identify harmful chemicals in a shop atmosphere and how to use them in a safe manner; the importance of identifying the weight of an item before lifting with lifting equipment or by hand, and proper lifting procedures of heavy items when using a lifting device.

Lecture + Lab + Other: 1 + 0 + 0

DSLT F103  Basic Equipment and Truck Operation
1 Credit
Offered Fall
Basic operation of heavy equipment and diesel trucks to include: stating, clutching, braking, and steering procedures. Basic forklift operation to include: lifting weight, calculation and point of balance of machine versus lifting load.

Lecture + Lab + Other: 0.5 + 1.5 + 0

DSLT F105  Preventive Maintenance
3 Credits
Offered Fall
Perform scheduled preventive maintenance on vehicles and heavy equipment. Gain knowledge of lubricants, filters, lubrication points and proper fluid levels and understanding of what to look for when performing a visual inspection.

Prerequisites: DSLT F101; DSLT F103.
Lecture + Lab + Other: 1.5 + 3 + 0

DSLT F107  Basic Electrical Systems and Electronic Fuel Injection
3 Credits
Offered Fall
DC voltage and amperage, fuses, circuit breakers, relays and junction boxes will be covered along with an understanding of wiring schematics and identification of and repair of lighting.

Lecture + Lab + Other: 1.5 + 3 + 0

DSLT F110  Basic Industrial Fabrication
2 Credits
Offered Fall
Students will learn the concepts of industrial fabrication. When working with heavy equipment, things can break. This class will teach the basics of how to fabricate and repair heavy equipment in and out of the field using various techniques.

Prerequisite: Department or Instructor approval required.
Lecture + Lab + Other: 1 + 2 + 0

DSLT F111  Diesel Emissions
2 Credits
Offered Spring
Students will learn the concepts of diesel engine emissions and how diesel emissions significantly contribute to air pollution. Knowledge of how to create cleaner running diesel engines, promote pollution-control technology, prevent unnecessary idling, and ultimately, make that puff of smoke that can come from these engines an image of the past. We will study and practice the actions taken to reduce diesel emissions using measuring devices, learn the terms and technologies of catalytic converters, particulate filters, the use diesel exhaust fluid, and be able to troubleshoot emission components.

Prerequisite: Department or Instructor approval required.
Lecture + Lab + Other: 1 + 2 + 0

DSLT F123  Heavy Duty Braking Systems
3 Credits
Offered As Demand Warrants
Braking systems for commercial trucks and heavy equipment applications; compressor testing and overhaul, relay valves, actuators, wear limits, acceptable tolerances, brake lining replacement, government regulations and pneumatic controls; evolving technologies such as anti-lock brakes. Remove and replace brake shoes, drums, hardware, S-cams and air chambers. Includes the inspection, preventive maintenance and overhaul of a commercial truck or heavy equipment braking system.

Prerequisites: DSLT F101; DSLT F103.
Lecture + Lab + Other: 1.5 + 3 + 0

DSLT F154  Diesel Fuel Injection
3 Credits
Offered Fall
Theory and functional operation of all common diesel fuel injection systems including those produced by modern Bosch, Mack, Cummins, Caterpillar and Detroit Diesel. Direct injection and pre-combustion fuel injection systems. Testing procedures, when testing high pressure diesel injection pumps and injectors as well as removing, installing and adjusting the most common systems used in the heavy truck and heavy equipment industry.

Lecture + Lab + Other: 2 + 2 + 0

DSLT F201  Manual Transmissions and Differentials
3 Credits
Offered As Demand Warrants
Theory, diagnosis and repair of manual transaxles and transmissions, transfer cases, differentials, clutch assemblies, power take off units, driveshafts and axles as well as removing and installing clutches, transmissions and differentials in a truck or piece of heavy equipment. Preventive maintenance and cold weather component problems will also be covered.

Prerequisites: DSLT F101; DSLT F103.
Lecture + Lab + Other: 1 + 4 + 0

DSLT F202  Heavy Duty Automatic Transmissions
2 Credits
Offered Spring
Theory, operation and troubleshooting of heavy duty automatic transmissions; hydraulic, electrohydraulic, pneumatic and electronic controls. Prepares the student to overhaul Allison, ZF and similar automatic transmissions.

Lecture + Lab + Other: 1 + 3 + 0
DSLT F210  Heavy Equipment Fabrication  
2 Credits  
Offered Spring  
Students will learn advanced concepts of industrial fabrication in the maintenance of heavy duty equipment, develop a strong understanding of metals and their applications, and have the ability to bend, heat, and apply welding techniques that will support heavy duty equipment for long term use.  
**Prerequisite:** Department or Instructor approval is required.  
Lecture + Lab + Other: 1 + 2 + 0  

DSLT F254  Engine  
5 Credits  
Offered Fall  
Understanding the two cycle and four cycle diesel engine. Performing tune-ups, as well as disassembling and reassembling a modern diesel engine commonly found in the heavy truck or heavy equipment industry.  
**Prerequisites:** DSLT F101; DSLT F103; DSLT F105.  
Lecture + Lab + Other: 2.5 + 5 + 0  

Drafting Technology (DRT)  

DRT F101  Introduction to Drafting  
3 Credits  
Offered As Demand Warrants  
Introduction to basic drafting skills necessary to communicate in the building, construction, design and process technology industries for freshman-level students and for certificate or associate degree-seeking students. Limited manual drafting techniques will be used to gain basic skills and to contrast the speed and accuracy to that of computer-aided drafting (CAD).  
Lecture + Lab + Other: 2 + 2 + 0  

DRT F110  Computer Literacy for Technicians  
3 Credits  
Offered As Demand Warrants  
Introduction to operating systems and their applications to technology. Emphasis will be placed on computer literacy for technology and industrial business applications relevant to technicians.  
Lecture + Lab + Other: 2 + 2 + 0  

DRT F112  Introduction to GIS  
3 Credits  
Offered As Demand Warrants  
Provides drafters with a general overview of what GIS is, who uses GIS, where GIS is used, and how GIS information is obtained and assimilated. There will be a section of practical use on one of the following systems: Manifold, Autodesk MAP, or Arch View.  
Lecture + Lab + Other: 3 + 0 + 0  

DRT F115  Graphics I  
3 Credits  
Offered As Demand Warrants  
Study and application of methods, problems and solutions in graphic design using AutoCAD and Viz.  
Lecture + Lab + Other: 3 + 0 + 0  

DRT F121  Construction Documents and Drawings  
3 Credits  
Offered As Demand Warrants  
Reading and interpretation of construction documents for residential, light commercial and heavy commercial structures using conventional symbols and representation.  
Lecture + Lab + Other: 3 + 0 + 0  

DRT F123  Uniform Building Code  
3 Credits  
Offered As Demand Warrants  
Covers the minimum required construction standards of the Uniform Building Code. Use of local zoning ordinances and the UBC as comprehensive building guides and their principal aspects applied to various building types and trades. Concentrates on zoning, the UBC and some fire codes. Mechanical and electrical codes are introduced only for student familiarity.  
**Recommended:** Working knowledge of building systems.  
Lecture + Lab + Other: 3 + 0 + 0  

DRT F140  Architectural Drafting  
3 Credits  
Offered As Demand Warrants  
Architectural drafting principles including site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plans and graphic standards. Also available eLearning & Distance Education.  
Lecture + Lab + Other: 2 + 2 + 0  

DRT F141  Architectural Concepts  
2 Credits  
Offered As Demand Warrants  
Architectural drafting concepts including basic site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plans and graphic standards.  
Lecture + Lab + Other: 2 + 0 + 0  

DRT F145  Structural Drafting  
3 Credits  
Offered Fall  
Introduces technical skills needed by structural drafters and technicians to work with structural engineers. Includes office practices, staff relationships, and structural drawing production. Develops computer-aided drafting skills in symbols, conventions, dimensioning systems, sheet organizations, code analysis and research methods for steel, wood, and reinforced concrete buildings.  
**Prerequisites:** DRT F170 or permission of program coordinator.  
Lecture + Lab + Other: 3 + 0 + 0  

DRT F150  Civil Drafting  
3 Credits  
Offered As Demand Warrants  
Civil drafting principles including plotting traverse and surveys by bearing and distance, latitudes and departures, topographic drawings and maps, contours and elevations, profiles and highway curves, cross-section drawings and grading plans.  
Lecture + Lab + Other: 2 + 2 + 0  

DRT F151  Civil Concepts  
2 Credits  
Offered As Demand Warrants  
Overview of civil drafting concepts and survey drafting including the plotting of traverse and surveys by bearing and distance.  
Lecture + Lab + Other: 2 + 0 + 0
DRT F155  Mechanical and Electrical Drafting
3 Credits
Offered as Demand Warrants
Introduces technical analysis, theory, code requirements, and CAD
techniques to produce construction drawings for mechanical and
electrical building systems. Includes drafting conventions, drawing
symbols, terminology, and research methods for residential and
commercial building systems and equipment.
Prerequisites: DRT F170 or permission of program coordinator.
Lecture + Lab + Other: 3 + 0 + 0

DRT F170  Beginning CAD
3 Credits
Instruction in basic working knowledge of CAD software and its
applications in drafting. Topics covered include an introduction to
CAD software applications, basic CAD skills and tools, through plotting
finished drawings. Practical applications.
Lecture + Lab + Other: 2 + 2 + 0

DRT F210  Intermediate CAD
3 Credits
Offered As Demand Warrants
Techniques for construction and drafting output using CAD. Emphasis
will be on the construction drawings produced for a building project and
the software tools used in this process.
Prerequisites: DRT F170 or enrolled as a CE Major or permission of the
program coordinator.
Lecture + Lab + Other: 2 + 2 + 0

DRT F250  Civil Drafting II -- Advanced
3 Credits
Offered As Demand Warrants
Techniques of highway design, boundaries, right of way layouts, curves
and grades, bridges, cut and fill detail drawings, gas and water services,
sewers, culverts, signs and guard rails.
Prerequisites: DRT F150; DRT F151; or permission of program
coordinator.
Lecture + Lab + Other: 2 + 2 + 0

DRT F260  Drafting Internship
1-6 Credits
Offered As Demand Warrants
Supervised work experience in process organizations. Assignments will
be individually arranged with cooperating organizations from the private
and public sectors. A maximum of 6 credits may be earned.
Prerequisites: Permission of program coordinator.
Lecture + Lab + Other: 0 + 3-18 + 0

DRT F270  Advanced CAD
3 Credits
Offered As Demand Warrants
Advanced areas of CAD (3-D, menu modifications and Auto lisp).
Prerequisites: DRT F170; DRT F210; or permission of program
coordinator.
Lecture + Lab + Other: 2 + 2 + 0

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Early Childhood Education (ECE)

ECE F101  Introduction to Early Childhood Profession
3 Credits
Includes historical foundation, current issues and trends, exposure to a
variety of developmentally appropriate programs, contemporary needs of
children and families, the importance of being an advocate, professional
standards and career opportunities, introduction to NAEYC and the code
of ethical conduct.
Lecture + Lab + Other: 2.75 + 0.5 + 0

ECE F102  Essentials of Parenting
3 Credits
Offered As Demand Warrants
An introductory course to help new parents with basic information
and skills needed to care for young children. Includes basics of child
development, infant care and relationship-building, nutrition and
budgeting. May be offered through the high schools with a tech-prep
agreement and applied to the early childhood degree programs as
elective credit.
Lecture + Lab + Other: 3 + 0 + 0

ECE F104X  Child Development I: Prenatal, Infants and Toddlers (s)
3 Credits
Foundation in child development prenatal to age 3. Includes anticipating
the emerging development during the rapid growth of these critical
years. Focuses on domains, theories, cultural perspectives and multiple
influences on development, with an emphasis on prenatal development,
healthy childbirth, the importance of relationships, and meaningful
environments. Includes observation, reflection, early intervention and
labs.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F106  SEED Level I (Alaska System for Early Education
Development)
1 Credit
Offered As Demand Warrants
An entry level overview of the Alaska System for Early Education
Development (SEED). Through class instruction and guided self-study,
students explore the basics of an early childhood career path.
Lecture + Lab + Other: 1 + 0 + 0

ECE F107  Child Development II: The Preschool and Primary
Years (s)
3 Credits
Foundation in development for the study of children ages 3-8, including
developmental domains, theories, milestones and cultural influences,
including indigenous and traditional practices. The emphasis is on
helping students use their knowledge of child development to predict
and promote optimal growth in children. Practical experiences, such as
observations and laboratory participation, will be included.
Recommended: ECE F104X.
Lecture + Lab + Other: 2.5 + 1 + 0
ECE F110  Safe, Healthy Learning Environments 3 Credits  
Offered As Demand Warrants  
Establishing and maintaining inclusive, safe, healthy, culturally and developmentally appropriate environments for children ages birth-8 years of age. Topics include preventative health care, safety aspects of field trips and indoor and outdoor settings. Completing coursework fall 2017 or later will meet the SOA Child Care Licensing health and safety requirements. 
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F115  Responsive and Reflective Teaching 3 Credits  
How to be ethical, responsive, productive, and well-informed practitioners in the field of early childhood. Emphasis on using traditional and local knowledge and values to inform practice, manage personnel and programs, and provide appropriate services and support to young children and their families. Includes the NAEYC Code of Ethics and NAEYC Standards. Use of observation to transform teaching and management practices. Lab required. This course is comparable to ECE F170. Students should take either ECE F115 or ECE F170 to meet the practicum and reflection requirement for the Certificate and A.A.S. degree. 
Prerequisites: ECE F101; placement in WRTG F111X; or permission of program head. 
Recommended: Computer with adequate and appropriate software, access to printer, audio conference and internet, and fax machine as needed. 
Lecture + Lab + Other: 2 + 2 + 0

ECE F117  Math Skills for Early Childhood Educators 3 Credits  
Offered Spring  
Computation involving percentages, estimation, problem solving, reading and creating graphs and tables, data organization and interpretation. Emphasis on applications of computational skills. 
Cross-listed with HUMS F117. 
Lecture + Lab + Other: 3 + 0 + 0

ECE F119  Curriculum I: Principles and Practices 3 Credits  
Methods of creating and facilitating individually and culturally appropriate curriculum for young children. Establishing integrated, meaningful and relevant experiences applied to the area of language and literacy. Includes a balance of individual and small group experiences, child-centered curriculum and teacher-directed times, as well as transitions. Focus on emergent curriculum, active learning and play. The use of local materials and resources is incorporated. Labs required. 
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F126  Activities for School-age Child Care 1 Credit  
Offered As Demand Warrants  
For child care staff who work in after-school and/or summer programs. Focus on daily activity schedules and appropriate, fun, challenging activities and projects for young school-age children. 
Lecture + Lab + Other: 1 + 0 + 0

ECE F130  Culture, Learning and the Young Child 2 Credits  
Ways each child within a culture comes to know, accept and take pride in himself or herself. Maintaining a culturally appropriate, open, friendly and cooperative caring relationship with each child’s family. 
Lecture + Lab + Other: 2 + 0 + 0

ECE F132  Young Child and the Family 1 Credit  
Introduction to the importance of a positive and productive relationship between families and the child development centers. Emphasis on using this relationship to coordinate child rearing efforts of both the family and the educator. 
Lecture + Lab + Other: 0.75 + 0.5 + 0

ECE F135  Family Day Care Home Provider Training 1 Credit  
Offered As Demand Warrants  
Operation of safe, successful day care home or family day care program. Overview of laws and regulations, business practices, parental concerns, health and safety, activities, space planning, snack and meal service, community support, and provider concerns. 
Lecture + Lab + Other: 1 + 0 + 0

ECE F140  Positive Social and Emotional Development 3 Credits  
Explores the importance of self-regulation, a strong self-concept and methods for helping children develop positive self-esteem. Focus on emotional intelligence, pro-social orientation, and social competence. Anti-bias curriculum is included. Techniques explored for working with groups of children birth-8 years old including social problem solving and developing skills for making friends. 
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F170  Practicum I 3 Credits  
A guided student teaching experience in working with a group of 0-8 year old children. Students apply skill in providing quality early care and education based on the knowledge of early childhood theories and approved practices. Assumes increasing responsibility for planning and lead teaching. 
Prerequisites: ECE F101; ECE F104X; ECE F107; ECE F110, ECE F119; ECE F140; ECE F213; ECE F229. 
Lecture + Lab + Other: 0.5 + 0 + 14

ECE F210  Child Guidance 3 Credits  
Guidance and discipline approaches for young children, based on an understanding of child development and of developmentally appropriate education practices. Such an understanding assists teachers and parents in addressing the cause of a behavior problem rather than the symptoms. 
Prerequisites: Placement in WRTG F111X; or permission of the program head. 
Lecture + Lab + Other: 3 + 0 + 0

ECE F213  Curriculum: Thinking, Reasoning and Discovery 3 Credits  
Emphasizes culturally and developmentally appropriate curriculum and activities to advance the cognitive development of young children, with particular focus on science, math and creativity. Includes a variety of approaches to curriculum development, assessment and necessary skills for early childhood teachers. Lab required. 
Recommended: ECE F104X; ECE F107; ECE F119. 
Lecture + Lab + Other: 2.5 + 1 + 0
ECE F214  Infants and Toddlers
3 Credits
Developmentally appropriate care and nurturance of infants and toddlers, with an emphasis on the importance of building relationships as the foundation of curriculum. Course will include segments which will prepare students to create, facilitate, and evaluate infant/toddler curriculum utilizing relationship-based practices, knowledge of child development, and routines. Includes activities to stimulate development and learning and support communication, guidance and health. Research-based techniques and cultural practices included. Weekly practice labs (14 hours) required.
Prerequisites: ECE F104X; or permission of program head.
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F229  Foundations in Nutrition and Physical Wellness
3 Credits
Offered As Demand Warrants
Appropriate ways to meet the physical needs of infants and young children including nutrition, movement and exercise. Includes laws, regulations and appropriate practices in child nutrition as well as initiatives and trends to combat malnutrition and obesity in young children. Includes providing positive role modeling and helping families understand the essentials of good health in the home, starting with prenatal maternal health and including breastfeeding and traditional and local foods. Explores space, materials, equipment and activities to promote physical health and fitness.
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F230  Introduction to Children with Special Needs
3 Credits
Offered As Demand Warrants
An overview of categories of exceptionality includes hearing and visual impairments; learning, speech and language disabilities; emotional disturbances; physical and mental challenges; and the gifted and talented.
Prerequisites: ECE F104X; ECE F107; placement in WRTG F111X; or permission of program head.
Lecture + Lab + Other: 3 + 0 + 0

ECE F235  Screening, Assessment and Recording
3 Credits
Information to help teachers of young children understand the purpose of screening. Presents use of good screening procedures. Explores the importance of assessing young children's development and provides tools and practice for recording and evaluating children's progress towards goals. Includes a variety of evaluation tools for assessing young children's development.
Prerequisites: ECE F104X; ECE F107.
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F240  Inclusion of Children with Special Needs
3 Credits
Offered Fall
Developmental, social, educational and legal (PL94-142 and 99-457) issues related to the education of young children with special needs. Includes the categories of exceptionality and the role of the teacher in identifying, assessing and individualizing educational programs to help young children succeed in the least restrictive and most responsive environments. Emphasis is on promoting positive outcomes for each child and building effective learning environments, including using assistive technology for children with disabilities.
Prerequisites: ECE F104X or ECE F107; placement in WRTG F111X; or permission of the program head.
Lecture + Lab + Other: 3 + 0 + 0

ECE F242  Child and Family Ecology
3 Credits
Examines the influences the family has on the child, family dynamics and issues impacting families. Focus on the importance of understanding relationship building, support for families and interpersonal skill development that is culturally conducive with individual communities. Examines the ECE program's policies and procedures on families and parental involvement. Includes practical applications of course reading and content.
Prerequisites: Placement in WRTG F111X; permission of program head.
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F249  Current Issues in Early Childhood Education
1-3 Credits
Offered As Demand Warrants
Selected current issues of importance to the human services, early childhood education or child development and family studies fields. Repeatable for credit by Early Childhood Education and Child Development and Family Studies majors to a maximum of nine credits.
Lecture + Lab + Other: 1-3 + 0 + 0

ECE F270  Practicum II
3 Credits
An advanced guided field experience in working with a group of young children in a school or center. May include teaching in a team situation and working with families.
Prerequisites: ECE F170; placement in WRTG F111X.
Lecture + Lab + Other: 0.5 + 0 + 15

ECE F299  Practicum for CDAs
1-3 Credits
A practical application of all previous CDA competency courses. The student will assume responsibility for children in an approved early childhood setting. (CDA curriculum.)
Prerequisites: Placement in WRTG F111X.
Lecture + Lab + Other: 0 + 0 + 0

ECE F301  Parents as Partners in Education
3 Credits
Offered Spring as Demand Warrants
Study of strategies that will assist those who work with children and/or families to facilitate supportive partnerships with parents. Includes partnerships, contemporary issues, school and home-based programs, rights and responsibilities, professional ethics, and parents with special or unique needs.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

ECE F302  Building Home Program Relationships: Prenatal to 3 Years
3 Credits
Offered As Demand Warrants
Focuses on professionalism, family support, ethics, cultural continuity, child development, attachment and curriculum of home-based programs. Addresses the broad continuum of services across multiple domains and how staff that work in these programs can meet the needs of children prenatal to 3 and their families in the home setting.
Prerequisite: WRTG F111X.
Recommended: WRTG F211X or WRTG F213X; ECE F342.
Lecture + Lab + Other: 3 + 0 + 0
ECE F304  Attachment and Social Development  (W, s)  3 Credits
Offered Fall or As Demand Warrants
Principles and practices in understanding and supporting attachment and social development in conjunction to reciprocal communication streams and social interactions. Strategies for working with families as a continuum for each specific child’s development.
**Prerequisites:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Recommended:** ECE F104X and ECE F107, or ECE F110, ED F245 or PSY F245 or other early development course.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F305  Social Emotional Development: Reflection and Practice  3 Credits
Offered Fall; As Demand Warrants
Examination of the many ways teachers can help young children with their social development by addressing the common problems and situations that arise in teaching all children between the ages of 3 and 6 years. Development of strategies to improve teacher practices that will support social and emotional competence.
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F306  Building Bridges to Support Family Mental Health  (W)  3 Credits
Offered Spring or As Demand Warrants
Understanding and providing assistance to families who live in environments with multi-risk factors requires professionals working together to provide the best possible interventions. Demonstration and examples of strategies that help multi-risk families that assists in bringing together the most effective intervention techniques from a variety of theoretical approaches, parenting strategies and innovative programs.
**Prerequisites:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F310  Constructivist Curriculum  3 Credits
Offered Fall
A focus on the issues involved in developing constructivist curriculum for young children. Includes a foundation in the aims and assumptions of constructivist teaching and key components of this type of curriculum. Emphasis is on best practices for constructivist classrooms.
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F320  Environment and Curriculum for Infants and Toddlers  3 Credits
Offered Fall
Roles and practices adults take for supporting learning and development in infants and toddlers aged birth - 3 years of age. Stresses the adoption of the child’s individual abilities and interests while supporting their exploration, discovery, relationship building and problem solving through environment development. Prominence for family inclusion in curriculum development through reciprocal relationships.
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 2.5 + 0 + 1.5

ECE F340  Financial Management of Early Childhood Programs  3 Credits
Offered Fall Odd-numbered Years
The financial aspects of managing a child care center or preschool program. Includes budgeting, program resource management, marketing, purchasing, pay and compensation, and fee collection issues important to maintaining quality programs for young children.
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F341  Personnel Management of Early Childhood Programs  (W)  3 Credits
Offered As Demand Warrants
Management of personnel of child care programs, including recruitment, hiring, in-service training, staff meetings and communication, supervision, evaluation, motivation, burnout prevention and termination of employees. Focus on maintaining quality programs for young children.
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F342  Family Relationships  (O)  3 Credits
Offered Fall
Examination of relationships in contemporary family life. Focus on the changing family, gender roles, living together, and relationships with children and grandchildren. Includes current family research and issues within and effect of public policy on families in our multicultural society.
**Prerequisites:** COJO F131X or COJO F141X; upper-division standing.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F345  Screening, Assessment and Data Collection Tools  3 Credits
Overview of the diverse range of tools available to be used for screening, ongoing child and classroom assessment, data collection and reporting of findings within early childhood programs. These tools can be used individually or collectively to support the development of a high quality early care and learning environment and positive outcomes for young children.
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
**Lecture + Lab + Other:** 3 + 0 + 0

ECE F350  Play: Foundation for Development  (s)  3 Credits
Offered As Demand Warrants
Concepts, theories and empirical research on the role of the play in the total development of children. Utilizing three major ideas – the effective quality of play in early childhood development, as a means of self-expression, and as a channel of communication. Examines the effects culture, media and technology have on play. Includes roles of early care-giving staff, teachers, and parents in supporting appropriate play experiences.
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ECE F107; ECE F104X; ECE F107; or approved development class.
**Lecture + Lab + Other:** 3 + 0 + 0
ECE F360  Assessment in Early Childhood  
3 Credits  
Offered Spring  
Examination of policies and practices related to evaluation and assessment of young children's progress. Includes legal, ethical and professional responsibilities in assessment. Exploration of "what, when, why and how" to assess young children. Includes practice and analysis of various assessment styles and tools as well as how to use information gained through assessment.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  

ECE F405  Seminar in Culture and Child-rearing Practices  
3 Credits  
Offered As Demand Warrants  
Seminar course providing opportunity for students, cross regionally throughout Alaska and beyond, to engage in the comparative study of issues associated with culture and child-rearing practices of families within Alaska and throughout the world. An emphasis will be placed on the role of caregiver working with children aged birth through three years of age.  
Prerequisite: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Recommended: ECE F104X, ECE F107 or PSY F245 or ED F245, ECE F130, ECE F342.  
Lecture + Lab + Other: 3 + 0 + 0  

ECE F410  Supporting Family Relationships through Mentoring  
3 Credits  
Offered Fall  
Focus on policies, leadership and professional practices inherent of successful relationships with parents. Consideration of individual communication styles and cultural diversity emphasized in relation to best mentoring practices.  
Prerequisites: ECE F242; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  

ECE F420  Developing Literacy in the Early Years  
3 Credits  
Offered Fall  
Principles and practices in understanding and supporting young children's emerging literacy. Links the importance of oral language and early exploration with later reading and writing skills. Strategies for assisting emergent readers and writers are included, as well as how to use play and children's interests to assist in developing their literacy.  
Prerequisites: ECE F310; ECE F360; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper-division standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ECE F421  From Babbling to Talking to Early Literacy  
3 Credits  
Offered Spring As Demand Warrants  
This course provides the opportunity for exploration and understanding of infant-toddler beginning language and early literacy development as it reflects on research from multiple fields. Looks at the importance of oral language development and early explorations with literacy while considering principles and practices that provide support for families and culture.  
Prerequisite: ECE F214; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 2.5 + 0 + 1.5  

ECE F430  Fine Arts for the Early Years  
3 Credits  
Offered Spring  
Focused on promoting the arts in children's lives. Explores the role of the teacher in helping children become aware of the beauty around them and to appreciate the variety and skill of many different kinds of art including: theatre, two- and three-dimensional art, crafts, vocal and instrumental music and dance. Strategies for assessing artistic development and working with families are incorporated.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ECE F240; ECE F310.  
Lecture + Lab + Other: 2.5 + 0 + 1.5  

ECE F440  Exploring Math and Science  
3 Credits  
Offered Fall Odd-numbered Years  
Focus on constructivist teaching of math and science. Explores the role of the teacher in helping children become theory builders in an environment designed to promote learning in math and science. Includes specific examples in chemistry, biology, ecology, numbers, patterns, geometry, measurement and data analysis. Emphasis is on teaching children an interactive, analytic and reflective process of inquiry.  
Prerequisites: ECE F310; ECE F360; upper-division standing.  
Recommended: Completion of at least one natural science course.  
Lecture + Lab + Other: 2.5 + 1 + 0  

ECE F442  Family Resource Management  
3 Credits  
Offered Fall Odd-numbered Years  
Management of resources which help families meet and alter the increasing complexities of life. Involves purposeful actions that affect the use of time, money, energy, skills, talents and knowledge. Explores roles, goals and decision-making within our multicultural society throughout the life cycle.  
Prerequisites: ECE F242; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  

ECE F445  Adolescence Through the Lifespan  
3 Credits  
Offered Spring Odd-numbered Years  
Study of the inter-relationships between early childhood and future development from adolescence through adulthood. Achievement in school, anorexia, chemical dependency and other health issues, family happiness, personal confidence and career success have all been linked to the early years. This course helps students understand these vital connections.  
Prerequisites: ECE F107 or ED F245 or PSY F245; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 2.5 + 0 + 1.5  

ECE F450  Leadership and Advocacy in the Early Childhood Field  
3 Credits  
Offered As Demand Warrants  
An overview of the early childhood field as a profession, the history of policy changes, and origin of policy reform. Topics will include system building strategies and models, ways to promote advocacy in early childhood, and leadership qualities necessary to be an advocate in the field.  
Prerequisites: WRTG F211X or WRTG F212X and ECE F340 or ECE F341.  
Lecture + Lab + Other: 3 + 0 + 0
ECE F470  Advanced Practicum
3 Credits
Offered As Demand Warrants
Advanced practicum requiring 200 hours of work in an early childhood program or family support agency as a teacher, curriculum specialist, family advocate or in another related position. A capstone course available only to those who have completed the other required course work for the B.A. in Child Development and Family Studies degree and their designated specialty.
Prerequisites: Senior standing; permission of instructor.
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F471  Clinical Practice: Organizational Action Research
3 Credits
Offered Spring Odd-numbered Years or As Demand Warrants
Theory and application of action research within an organization. Emphasis on use of personal reflection to understand practice and the development of a planned theory of action. Techniques for observing action through the use of examining the evidence are learned. Students should expect to be involved within an early childhood administrative setting for some or all of the day for a minimum of 10 weeks.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; completion of all CDFS core major and Administration or Family Support concentration course work.
Lecture + Lab + Other: 1 + 0 + 14

ECE F472  Clinical Practice: Classroom Research
3 Credits
Offered Spring or As Demand Warrants
Theory and application of action research within an organization. Emphasis on use of personal reflection to understand practice and the development of a planned theory of action. Techniques for observing action through the use of examining the evidence are learned. Students should expect to be involved within an early childhood administrative setting for some or all of the day for a minimum of 10 weeks.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; completion of all CDFS core major and Administration or Family Support concentration course work, excluding ECE F473.
Lecture + Lab + Other: 1 + 0 + 14

ECE F473  Clinical Practice: Classroom Management
3 Credits
Offered Spring or As Demand Warrants
Supervised clinical field practice within an early childhood setting. Intent of this course is to provide a capstone for students who have completed all course work within the Curriculum and Teaching or Infant and Toddler concentration of the Child Development and Family Studies B.A. program. Practica activity will demonstrate application of appropriate curriculum, assessment and classroom environments developed to enhance the learning and development of young children. This course may be taken in conjunction with ECE F480.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; completion of all CDFS core major and concentration course work, excluding ECE F472.
Lecture + Lab + Other: 1 + 0 + 14

ECE F480  Child Development and Family Studies Portfolio
1 Credit
Offered Fall and Spring As Demand Warrants
Entry into development of a capstone project that documents the graduating candidate’s professional development as a result of the Child Development and Family Studies program within the standards set by the National Association for the Education of Young Children. The portfolio is required for final completion of the CDFS B.A. degree program in lieu of a written comprehensive exam or thesis. This course introduces students to the portfolio process, which will be completed with final assessment as the finishing piece of the CDFS program.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; admittance to the CDFS B.A. program.
Lecture + Lab + Other: 0.5 + 0 + 1

Economics (ECON)

ECON F100X  Political Economy (s)
3 Credits
Survey of the evolution and operation of the American domestic political economy with consideration of market failures and government responses. Review of major issues in political economy such as inflation, poverty and budget deficits. Exploration of linkages between American and global systems.
Prerequisites: Placement in WRTG F111X.
Attributes: UAF Core Political Economy, UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ECON F111  Economics of Rural Alaska (a)
3 Credits
Offered As Demand Warrants
Basic economic concepts as they relate to issues and problems of contemporary regional development in rural Alaska. Socioeconomic consequences of the introduction of new technologies, modern economic infra-structures and corporate relationships to traditional, small scale communities.
Lecture + Lab + Other: 3 + 0 + 0

ECON F201X  Principles of Economics I: Microeconomics (s)
3 Credits
Price and market theory, income distribution, public policy, labor markets, market structure, and externalities.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ECON F202X  Principles of Economics II: Macroeconomics (s)
3 Credits
Analysis and theory of national income, money and banking, stabilization policy, and international trade and finance.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

ECON F227  Introductory Statistics for Economics and Business
3 Credits
Development of statistical techniques and their application to economic and business problems. Simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, nonparametric methods and decision theory.
Prerequisites: AIS F101.
Lecture + Lab + Other: 3 + 0 + 0
ECON F235X Introduction to Natural Resource Economics  (s, a)  
3 Credits  
Offered Fall  
Microeconomic principles and their application to natural resource issues. Topics include supply, demand, marginality, optimality, elementary production economics, economic rent and comparative advantage. These principles applied to agency budget allocation decisions, multiple use, resource valuation, conservation, market failure and public outdoor recreation problems.  
Attributes: UAF GER Social Sciences Req  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F237 The Alaskan Economy  (s, a)  
3 Credits  
Offered Spring  
Economic problems in Alaska with analysis of historical trends and current patterns of economic growth; emphasis on present and future alternative economic policies and their potential impacts.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F321 Intermediate Microeconomics  (s)  
3 Credits  
Analysis of demand and supply under various market forms, cost and theory of production, factor pricing and theory of distribution and survey of welfare economics.  
Prerequisites: ECON F201X; ECON F202X; MATH F230X.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F322 Managerial Economics  
3 Credits  
Interpretation of economic data and applications of economic theory in business firms. Bridging the gap between theory and practice through empirical studies, cases and decision problems. Emphasis upon decision-making using analysis of research data.  
Prerequisites: ECON F201X; ECON F202X; MATH F230X.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F324 Intermediate Macroeconomics  (s)  
3 Credits  
Concepts and measurement of income, analysis of aggregate demand and supply and their relation to the level of prices, employment and economic growth.  
Prerequisites: ECON F201X; ECON F202X; MATH F230X.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F327 Intermediate Econometrics for Forecasting and Business  
3 Credits  
Offered As Demand Warrants  
Extension of topics developed in ECON F227 including methods of empirical analysis in the context of economic analysis and forecasting problems. Development of the science and art of building and using models in the context of economic analysis and forecasting. Understanding the fundamental theory underlying regression methods (including estimation, hypothesis testing, and prediction) and learning how to appropriately apply these techniques in the analysis of economic and business problems. Simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, nonparametric methods and decision theory.  
Prerequisites: STAT F200X and ECON F227.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F335 Intermediate Natural Resource Economics  (O, s, a)  
3 Credits  
Extension of concepts developed in ECON F235X, using a higher level of economic analysis. Topics include welfare economics and economic efficiency concepts, benefit/cost analysis, resource allocation over time, resource taxation, common property problems, externalities, public goods, valuation of non-market resources, and land use planning issues.  
Prerequisites: COJO F131X or COJO F141X; ECON F201X; ECON F202X or ECON F235X; MATH F230X.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F350 Money and Banking  (s)  
3 Credits  
The liquid wealth system in the United States, including the commercial banking system, the Federal Reserve System and nonbank financial institutions; the regulation of money and credit and its impact on macroeconomic policy objectives.  
Prerequisites: ECON F201X; ECON F202X.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F351 Public Finance  (s)  
3 Credits  
Offered Fall  
Economic justifications for government; federal, state and local government, taxation, spending and debt; their effects on allocation, distribution, stabilization and growth.  
Prerequisites: ECON F201X; ECON F202X; MATH F230X.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F409 Industrial Organization and Public Policy  (W, s)  
3 Credits  
The relationship of market structure to the economic conduct and performance of firms and industries, the determinants, measurement and classification of market structure, public policy toward mergers, industrial and aggregate concentration.  
Prerequisites: ECON F201X; ECON F202X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F230X; upper division standing.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F420 Labor Markets and Public Policy  (W, s)  
3 Credits  
Offered Spring Odd-numbered Years  
Application of labor market analysis and wage theory as they relate to public policy issues. Topics include determination of wages, taxation and employment, economic impact of unions, economics of discrimination, and issues relating to women's and minorities' changing roles in the labor market.  
Prerequisites: ECON F201X; ECON F202X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0  
ECON F434 Environmental Economics  (W, a)  
3 Credits  
Offered Spring Odd-numbered Years  
An extension of concepts introduced in ECON F235X, using a higher level of economic analysis. An analysis of the economic forces involved in environmental degradation, preservation and regulation. Topics include pollution, biodiversity, wilderness and climatic change.  
Prerequisites: ECON F201X and ECON F202X or ECON F235X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F230X.  
Lecture + Lab + Other: 3 + 0 + 0
ECON F439  Energy Economics (W, s, a)  3 Credits
Offered Fall Odd-numbered Years
Market forces and institutions affecting the allocation of energy resources. Special attention to intertemporal allocative decisions and the role that public policy plays in influencing the rate at which energy resources are used over time.
Prerequisites: ECON F201X and ECON F202X or ECON F235X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Stacked with ECON F639.
Lecture + Lab + Other: 3 + 0 + 0

ECON F451  Public Expenditure Analysis (W)  3 Credits
Offered Spring Odd-numbered Years
Purposes and economic effects of governmental expenditures, budgeting techniques, and their effects on resource allocation.
Prerequisites: ECON F201X; ECON F202X; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F230X.
Lecture + Lab + Other: 3 + 0 + 0

ECON F463  International Economics (W, s, a)  3 Credits
Prerequisites: ECON F201X; ECON F202X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F230X.
Lecture + Lab + Other: 3 + 0 + 0

ECON F601  Microeconomic Theory I  3 Credits
Offered Fall
Analysis of consumer and producer theory, price determination and welfare economics.
Prerequisites: ECON F321; MATH F251X; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ECON F602  Economic Modeling  3 Credits
Offered Fall
A hands on approach to applied microeconomics and resource modeling. Students extend their training in economic theory and econometrics to model real life problems in the areas of renewable and exhaustible resources, non-market valuation and environmental economics. Special emphasis will be given to the use of econometric analyses.
Prerequisites: ECON F601; ECON F626; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ECON F603  Macroeconomic Theory I  3 Credits
Offered Spring
Analysis of the underlying causes of unemployment, economic instability, inflation and economic growth.
Prerequisites: ECON F321; ECON F324; MATH F251X; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ECON F613  Resilience Internship  2 Credits
Offered Fall
Students of the Resilience and Adaptation Program participate in internships to broaden their interdisciplinary training, develop new research tools and build expertise outside their home disciplines. Internships are for eight to ten weeks of full time commitment and take place during the student’s first summer in the program. In autumn students meet to discuss their internship experiences and make public presentations.
Prerequisites: ANTH/BIOL/ECON/NRM F667; ANTH/BIOL/ECON/NRM F668.
Cross-listed with ANTH F617; BIOL F613; NRM F613.
Lecture + Lab + Other: 2 + 0 + 0

ECON F616  Economics Background for Resilience and Adaptation (a)  1 Credit
Offered Fall
Provides the economics background that is necessary for understanding the role of economics in complex systems involving interactions among biological, economic, and social processes. Designed for incoming students of the Resilience and Adaptation Program (RAP), who have not received training in ecology.
Prerequisites: Graduate student enrollment.
Lecture + Lab + Other: 1 + 0 + 0

ECON F623  Mathematical Economics  3 Credits
Offered Fall
Mathematical techniques including matrix algebra, differential and integral calculus. Particular attention is given to static and comparative statics analysis and dynamic models.
Prerequisites: MATH F251X; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ECON F626  Econometrics  3 Credits
Offered Spring
Introduction to econometric theory. Single equation and multiple equation system estimation, including inference and hypothesis testing and results of assumption violation.
Prerequisites: ECON F227; MATH F251X; STAT F401; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ECON F627  Advanced Econometrics  3 Credits
Offered Fall
Advanced Econometrics is the second graduate econometrics course in the Ph.D. in Resource Economic program. This course builds upon the theoretical and empirical tools developed in ECON F626. Large sample theory and the Maximum Likelihood estimation theory are covered. Limited dependent variable models widely used in applied microeconometric modeling are developed and extended. Univariate and multivariate time series modeling and forecasting is developed.
Prerequisites: ECON F626; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0
ECON F635  Renewable Resource Economics  (a)  
3 Credits  
Offered Fall  
The theory, methods of analysis and current literature of natural resource economics and policy for fisheries, forests and wildlife. Topics include externalities, property rights, public goods, benefit-cost analysis, amenity values and other non-market resource services, and environmental policy.  
Prerequisites: ECON F321; ECON F335; MATH F251X; graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ECON F636  Nonrenewable Resource Economics  (a)  
3 Credits  
Offered Spring  
Exploration of issues relating to the mineral and energy markets. The analysis of energy and mineral use over time, capital investment problems and world market dynamics are explored. Topics include futures markets, present value, energy value and entropy.  
Prerequisites: ECON F321; ECON F335; MATH F251X; graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ECON F637  Evolution of Conservation Concepts and Policy  
3 Credits  
Offered Fall Even-numbered Years  
Resource policy issues development and implementation including forestry, mining, fisheries, oil, wildlife and other topics as demand warrants. Focus on policy issues involved in management of Alaska’s resources.  
Prerequisites: Graduate standing.  
Cross-listed with NRM F637.  
Lecture + Lab + Other: 3 + 0 + 0  

ECON F639  Energy Economics  (a)  
3 Credits  
Offered Fall Odd-numbered Years  
Market forces and institutions affecting the allocation of energy resources. Special attention to intertemporal allocative decisions and the role that public policy plays in influencing the rate at which energy resources are used over time.  
Prerequisites: ECON F201X and ECON F202X or ECON F235X; graduate standing.  
Stacked with ECON F439.  
Lecture + Lab + Other: 3 + 0 + 0  

ECON F647  Global to Local Sustainability  
3 Credits  
Offered Fall  
Explores the basic principles that govern resilience and change of ecological and social systems. Principles are applied across a range of scales from local communities to the globe. Working within and across each of these scales, students address the processes that influence ecological, cultural and economic sustainability, with an emphasis on northern examples.  
Prerequisites: Graduate standing in a natural science, social science, humanities or interdisciplinary program at UAF.  
Cross-listed with ANTH F647; BIOL F647; NRM F647.  
Lecture + Lab + Other: 3 + 0 + 0  

ECON F649  Integrated Assessment and Adaptive Management  
3 Credits  
Offered Spring  
An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management. Collectively, the class builds a portfolio of cases and conducts an integrated assessment. Note: In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements. The course is designed to fit into the sequence of the Resilience and Adaptation program’s core courses. It is open to other graduate students interested in and prepared to conduct interdisciplinary studies relating to sustainability.  
Prerequisites: Graduate student standing in a natural science, social science, humanities or interdisciplinary program at UAF or another university.  
Recommended: ANTH F647, BIOL F647, ECON F647, NRM F647; ANTH F667, BIOL F667, ECON F667, NRM F667.  
Cross-listed with ANTH F649; BIOL F649; NRM F649.  
Lecture + Lab + Other: 3 + 0 + 0  

ECON F667  Resilience Seminar I  
1 Credit  
Offered Fall  
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are relevant to sustainability. A considerable portion of the seminar is student-directed, with students assuming leadership in planning seminar activities with the instructor.  
Prerequisites: Enrollment in Resilience and Adaptation graduate program.  
Recommended: ANTH F647, BIOL F647, ECON F647 or NRM F647 (taken concurrently).  
Cross-listed with ANTH F667; BIOL F667; NRM F667.  
Lecture + Lab + Other: 2 + 0 + 0  

ECON F668  Resilience Seminar II  
1 Credit  
Offered Spring  
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.  
Prerequisites: ANTH/BIOL/ECON/NRM F647; ANTH/BIOL/ECON/ NRM F667.  
Cross-listed with ANTH F668; BIOL F668; NRM F668.  
Lecture + Lab + Other: 2 + 0 + 0  

ECON F670  Seminar in Research Methodology  
1 Credit  
Offered Spring  
Philosophy of research and importance of the scientific method to solution of research problems.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 1 + 0 + 0  

ECON F692  Seminar  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 0
ED F204  Literature for Children
3 Credits
A study of the physical, cultural, emotional, cognitive and social aspects of a child’s development from prenatal period through early adolescence. Focus on developmental theories including Erickson, Gardner, Gilligan, Kagen, Sternberg, Vygotsky and other contemporary theories of child and adolescent development.
Prerequisites: WRTG F111X.
Cross-listed with PSY F245.
Lecture + Lab + Other: 3 + 0 + 0

ED F299  Practicum in Education
1-3 Credits
Individualized work experience. Credit is variable from 1 to 3 credits, depending upon the quality and quantity of the work experience. Credit may be earned in most disciplines and programs.
Lecture + Lab + Other: 0 + 0 + 0

ED F299  Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

ED F201  Introduction to Education
3 Credits
Introduction to the profession of education and specifically, the field of teaching. View of social, political, cultural and historical factors that influence education and schools at the national and Alaska state level. Field experience required.
Prerequisites: ED F110; WRTG F111X; sophomore standing.
Lecture + Lab + Other: 1 + 0 + 0

ED F201C  Technology Tools for Teachers: Collaborate/Hangouts
0.5 Credit
Designed to equip pre-service teachers with the necessary technology skills to be successful in their pre-service programs. Successful challenge or completion of all modules is a prerequisite for ED F329. May be repeated once for credit. Each module will require approximately six hours of direct instruction and four to eight hours of lab work. This module covers the use of Blackboard Collaborate and Google Hangouts for participating in UA course work online.
Lecture + Lab + Other: 0.5 + 2 + 0

ED F201B  Technology Tools for Teachers: Blackboard
0.5 Credit
Designed to equip pre-service teachers with the necessary technology skills to be successful in their pre-service programs. Successful challenge or completion of all modules is a prerequisite for ED F329. May be repeated once for credit. Each module will require approximately six hours of direct instruction and four to eight hours of lab work. This module covers the use of Blackboard Collaborate and Google Hangouts for participating in UA course work online.
Lecture + Lab + Other: 0.5 + 2 + 0

ED F201A  Technology Tools for Teachers: Collaborate/Hangouts
0.5 Credit
Designed to equip pre-service teachers with the necessary technology skills to be successful in their pre-service programs. Successful challenge or completion of all modules is a prerequisite for ED F329. May be repeated once for credit. Each module will require approximately six hours of direct instruction and four to eight hours of lab work. This module covers the use of Blackboard Collaborate and Google Hangouts for participating in UA course work online.
Lecture + Lab + Other: 0.5 + 2 + 0

ED F100  Language, Education, Linguistics (h)
3 Credits
Offered Spring
Introduction to the field of linguistics as it pertains to the field of education. Includes discussions of language structure, acquisition and bilingualism, and variation and public policy. The course does not satisfy requirements for the B.A. in Linguistics.
Cross-listed with LING F100.
Lecture + Lab + Other: 3 + 0 + 0

ED F245  Child Development (s)
3 Credits
A study of the physical, cultural, emotional, cognitive and social aspects of a child’s development from prenatal period through early adolescence. Focus on developmental theories including Erickson, Gardner, Gilligan, Kagen, Sternberg, Vygotsky and other contemporary theories of child and adolescent development.
Prerequisites: WRTG F111X.
Cross-listed with PSY F245.
Lecture + Lab + Other: 3 + 0 + 0

ED F299  Practicum in Education
1-3 Credits
Individualized work experience. Credit is variable from 1 to 3 credits, depending upon the quality and quantity of the work experience. Credit may be earned in most disciplines and programs.
Lecture + Lab + Other: 0 + 0 + 0
ED F303  Language Acquisition      (O, W)  3 Credits
Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary theories, and implications for pedagogy and public policy.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X; WRTG F212X, WRTG F213X or WRTG F214X.
Recommended: LING F101X.
Cross-listed with LING F303.
Lecture + Lab + Other: 3 + 0 + 0

ED F309  Elementary School Music Methods  3 Credits
Offered Fall Even-numbered Years
Principles, procedures and materials for teaching music to children at the elementary level.
Cross-listed with MUED F309.
Lecture + Lab + Other: 3 + 0 + 0

ED F329  Teaching with Technology  3 Credits
Participants will examine multiple technology-based strategies that promote learning in P-12 classrooms. The class will examine mobile as well as desktop/laptop technologies, exploring a variety of topics including: collaboration, communication, content and classroom management apps, the role of social media in school, and the ISTE Standards for Educators.
Prerequisites: Approval from School of Education academic advisor, laptop or iPad required.
Lecture + Lab + Other: 3 + 0 + 0

ED F330  Assessment of Learning  3 Credits
Review and examination of the range of traditional and alternative assessment and evaluation approaches used in educational contexts. Focus is on developing assessment practices and policies that are appropriate for the diverse student population in Alaska's rural and urban schools. Field experience required.
Prerequisites: ED F201; a mathematics baccalaureate core course.
Lecture + Lab + Other: 3 + 0 + 0

ED F344  Foundations of Literacy Development      (W)  3 Credits
Language, reading, and writing development examined in children of varying ages and within a range of social and cultural contexts, with emphasis on a developmental approach to literacy development in school and home settings. Introduction to best practices in research-based methods for teaching and learning of reading and writing. Field experience required.
Prerequisites: ED F201; ED F204; WRTG F111X; WRTG F211X; WRTG F212X, WRTG F213X or WRTG F214X; upper-division standing; laptop computer required.
Lecture + Lab + Other: 3 + 0 + 0

ED F345  Sociology of Education      (s)  3 Credits
Offered Fall Odd-numbered Years
Theoretical perspectives on various dimensions of the relationship between education and society, including the institutional context of schooling, the impact of schooling on social stratification, and social organization within the school and classroom. Special attention is given to issues of equity and contemporary educational reform efforts.
Prerequisites: SOC F101X.
Cross-listed with SOC F345.
Lecture + Lab + Other: 3 + 0 + 0

ED F350  Communication in Cross-cultural Classrooms  3 Credits
Interdisciplinary examination of communication and language in cross-cultural educational contexts, including language, literacy and interethnic communication related to classrooms in Alaska.
Prerequisites: ED F201.
Lecture + Lab + Other: 3 + 0 + 0

ED F411  Reading, Writing, Language Arts: Methods and Curriculum Development  3 Credits
Offered Fall
Study and application in the classroom of best practices from research-based strategies for the teaching and learning of reading, writing and language arts concepts. Includes content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of integrated reading and writing unit. Concurrent internship required.
Prerequisites: Admission to Internship Year.
Lecture + Lab + Other: 2.5 + 0 + 1.5

ED F412  Integrated Social Studies and Language Arts: Methods and Curriculum Development      (W)  3 Credits
Offered Fall
Study and application in the classroom of best practices from research-based strategies for the teaching and learning of social studies concepts, content, and methods integrated with language arts for students in elementary classrooms with diverse populations. Requires development and classroom implementation of integrated social studies and language arts unit. Concurrent internship required.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; admission to Internship Year.
Lecture + Lab + Other: 2 + 0 + 3

ED F414  Art, Music and Drama in Elementary Classrooms  3 Credits
Offered Spring
Exploration and application, in the classroom, of theory, practice, methods and materials used in teaching in and through visual art, music and drama. Concurrent internship required.
Prerequisites: Admission to the Internship Year.
Lecture + Lab + Other: 1.5 + 0 + 4.5

ED F417  Physical and Health Education for Elementary Teachers  3 Credits
Introduction and application of the relationship between physical fitness and good health in a school setting. Includes introducing students to fundamental movement activities and games. Includes incorporating health curriculum and first aid procedures into practices and policies, and issues specific to the Alaska context. Concurrent internship required.
Prerequisites: Admission to the Internship Year.
Lecture + Lab + Other: 1.5 + 0 + 4.5
ED F419  Cultural Atlases as a Pedagogical Strategy  (a)  
3 Credits
The content of the course provides an in-depth look at how teachers can integrate technology and academics with oral traditions and offers a vehicle for helping communities define themselves and their unique cultural identity. Teachers will have an opportunity to guide their students through a positive collaboration with local culture-bearers, community members and educational personnel. The multimedia resources for this course provide numerous examples of cultural atlases and guidance on ways in which the rich oral traditions of Native people can be drawn upon in support of the school curriculum.
Prerequisites: ANTH F242.
Cross-listed with CCS F418.
Stacked with CCS F618; ED F619.
Lecture + Lab + Other: 3 + 0 + 0

ED F420  Alaska Native Education  (s, a)  
3 Credits
Offered Fall
School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required.
Prerequisites: ANTH F242 and Junior standing.
Cross-listed with ANS F420.
Stacked with ED F606.
Lecture + Lab + Other: 3 + 0 + 0

ED F431  Web 2.0 Fundamentals: Participate, Produce, Publish  
3 Credits
Offered Fall As Demand Warrants
Examine the impact of Web 2.0, cloud computing and mobile technologies on K-12 education and other social institutions. Establish and publish to frameworks--web-based e-portfolio, personal learning network, blog, podcasts--that will form the core elements of the M.Ed. Instructional Technology Innovation (MITI). This course is a prerequisite for subsequent work toward the MITI and should be taken before or concurrently with ED F432, Fundamentals of Media Design.
Prerequisites: Admission to the Master of Education program.
Lecture + Lab + Other: 3 + 0 + 0

ED F432  Fundamentals of Media Design  
3 Credits
Offered As Demand Warrants
Create and publish materials with proper media design for use in teaching and learning. Topics include photo and graphics formatting, video production, video podcast production, SMART technologies, static screen capture and motion screen capture. These productions will be included on students' MITI e-portfolios. This course is a prerequisite for subsequent MITI courses and should be taken after or concurrently with ED F431 Web 2.0 Fundamentals: Participate, Produce, Publish.
Prerequisites: Admission to the Master of Education program.
Lecture + Lab + Other: 3 + 0 + 0

ED F440  Gender and Education  (s)  
3 Credits
Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender, patterns of access and achievements, gender as an organizing principle in schools and classrooms, and feminist agendas and strategies for change.
Prerequisites: Junior standing.
Cross-listed with WGS F440.
Stacked with ED F640.
Lecture + Lab + Other: 3 + 0 + 0

ED F449  Elementary Art Methods  
3 Credits
Offered Spring
Methodologies of instruction and assessment in art education at the elementary level. Focus is on the knowledge and tools necessary to become excellent elementary art educators. Students will be expected to construct lessons reflecting theory and practice that are developmentally appropriate for elementary level students of all ages. Particular attention will be given to using and understanding the National Standards for Art Education, Alaska Content/Performance Standards and key curriculum documents in an elementary context.
Prerequisites: Admission to K-12 Art post-baccalaureate licensure program or to M Ed in Curriculum and Instruction option for post-baccalaureate students.
Stacked with ED F649.
Lecture + Lab + Other: 3 + 0 + 0

ED F452  Elementary Internship  (O)  
3-15 Credits
Supervised teaching in elementary schools approved by the School of Education. Students should expect to be involved in the school setting for some or all of the school day (depending on number of credits taken) for the entire university semester. The School of Education may limit enrollment, determine assignments and cancel the registration of students doing unsatisfactory work. Post-baccalaureate students must be admitted to the Art K-12 licensure program. Passing Praxis I scores.
Prerequisites: COJO F131X or COJO F141X; successful completion of methods practicum and methods course work with a C or better.
Cross-listed with ART F458.
Lecture + Lab + Other: 1 + 0 + 42

ED F453  Secondary Internship  (O)  
3-15 Credits
Supervised teaching in secondary schools approved by the School of Education. Students should expect to be involved in the school setting for some or all of the school day (depending on number of credits taken) for the entire university semester. The School of Education may limit enrollment, determine assignments and cancel the registration of students doing unsatisfactory work. Post-baccalaureate students must be admitted to K-12 Art licensure program. Passing Praxis I scores.
Prerequisites: COJO F131X or COJO F141X; and successful completion of methods practicum and methods course work with a C or better.
Cross-listed with ART F459.
Lecture + Lab + Other: 1 + 0 + 42
ED F454  Student Teaching K-12  (O)
15 Credits
Supervised teaching in both elementary and secondary schools approved by the Music Department and the School of Education. Open only to Music majors seeking K-12 certification. Students should expect to be involved in the school setting for the entire school year for the entire university semester. The department may limit enrollment, determine assignments and cancel the registration of students doing unsatisfactory work. Passing Praxis scores. For Bachelor of Music students, see B.M. degree requirements.
**Prerequisites:** COJO F131X or COJO F141X, successful completion of methods practicum and methods course work with a C or better.
**Lecture + Lab + Other:** 1 + 0 + 42

ED F456  Orientation to Teaching in Rural Alaska  (a)
3 Credits
Offered Summer, As Demand Warrants
Needs of rural schools, their environments and the recipients of school services with special attention given to cross-cultural educational issues.
**Prerequisites:** Permission of instructor.
**Lecture + Lab + Other:** 2 + 3 + 0

ED F461  Native Ways of Knowing  (h, a)
3 Credits
Offered As Demand Warrants
Focus on how culture and worldview shape who we are and influence the way we come to know the world around us. Emphasis on Alaska Native knowledge systems and ways of knowing.
**Prerequisites:** Junior standing.
**Cross-listed with** ANS F461.
**Lecture + Lab + Other:** 3 + 0 + 0

ED F466  Internship and Collaborative Student Teaching
3 Credits
Offered Fall
Supervised internship for students in the first half of a year-long professional internship in elementary teacher education. Includes immersion in planning and teaching. Course work is integrated into the internship experience. Interns are assessed in relationship to UAF/Alaska state and national standards.
**Prerequisites:** Admission to Internship Year.
**Lecture + Lab + Other:** 1.5 + 0 + 12

ED F467  Classroom Management Communication and Collaboration I
2 Credits
Offered Fall
For student interns participating in the first half of the professional internship year. Focus of course is UAF/Alaska Teacher Standards 6 (Classroom Management and Organization), Standard 7 (Partnerships with Parents, Families and Community) and Standard 8 (Professionalism and Collaboration). Interns complete and reflect on collaborative experiences and activities both within and outside their school and improve classroom communication skills through collection and analysis of selected artifacts to document and provide evidence of professional development and achievement relative to UAF/Alaska Teacher Standards. Concurrent internship required.
**Prerequisites:** Admission to Internship Year.
**Lecture + Lab + Other:** 1 + 0 + 8

ED F468  Internship and Student Teaching  (O)
4 Credits
Offered Spring
For student interns participating in the second half of the year-long professional elementary teacher education internship. Interns must spend at least four days per week in the classroom, one month full-time in the classroom including at least three weeks of full responsibility for the classroom. Builds on ED F466 requirements with continued assessment based on UAF/Alaska State and National Standards.
**Prerequisites:** COJO F131X or COJO F141X; admission to the Internship Year.
**Lecture + Lab + Other:** 2 + 0 + 6

ED F469  Classroom Management Communication and Collaboration II
2 Credits
Offered Spring
For student interns participating in the second half of the professional internship year. Interns use the UAF/Alaska Teacher Standards 1 (Philosophy), 5 and 6 (planning components), 7 (Families and Community) and 8 (Professionalism) as a basis for examining field- and course-based experiences and activities during the internship year. Requires collection and analysis of selected artifacts to document and provide evidence of professional development and achievement relative to UAF/Alaska educational standards. Interns formally present completed portfolios for reviews and evaluations. Concurrent internship required.
**Prerequisites:** Admission to 2nd semester of the Internship Year.
**Lecture + Lab + Other:** 1 + 0 + 3

ED F476  Assessment of Literacy Development
1 Credit
Offered Spring
Interns will review, evaluate and create assessments to document elementary student literacy development. Interns will analyze results of literacy assessments and develop plans for instruction for each elementary student. Assessments may include teacher-made quizzes or tests, anecdotal records based on observing children, student reading and writing samples, and spelling assessments. Interns will identify important characteristics of each student including, but not limited to, student interests and goals for literacy development.
**Prerequisites:** Admission to the internship year.
**Lecture + Lab + Other:** 1 + 0 + 22

ED F478  Mathematics Methods and Curriculum Development
3 Credits
Offered Fall
Study and application in the classroom of best practices from research-based strategies for the teaching and learning of mathematical concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of mathematics unit. Concurrent internship required.
**Prerequisites:** Admission to Internship Year.
**Stacked with** ED F678.
**Lecture + Lab + Other:** 2 + 0 + 8
ED F479  Science Methods and Curriculum Development
3 Credits
Offered Spring
Study and application in the classroom of the best practices from research-based strategies for the teaching and learning of science concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of science unit. Classroom internship required.
Prerequisites: Admission to internship year; concurrent enrollment in other internship year courses; Alaska passing scores for three Praxis I exams.
Stacked with ED F688.
Lecture + Lab + Other: 2.5 + 0 + 4

ED F486  Media Literacy  (O, W, h)
3 Credits
Promotes critical thinking skills that empower people to make independent judgments and informed decisions in response to information conveyed through the channels of mass communications. Emphasis on developing students and others into critical viewers, listeners and readers of media.
Prerequisites: COJO F131X or COJO F141X; junior standing; laptop computer.
Lecture + Lab + Other: 3 + 0 + 0

ED F601  Introduction to Applied Social Science Research
3 Credits
Review of the most common educational research paradigms, data gathering techniques and analytical tools used in the study of human behavior and educational institutions. Attention will be given to collaborative research models, with a focus on the translation of research results into practical application.
Lecture + Lab + Other: 3 + 0 + 0

ED F603  Field Study Research Methods
3 Credits
Focus on techniques for conducting both quantitative and qualitative field research. Particular emphasis on considerations for conducting field research in cross-cultural settings.
Prerequisites: ED F601.
Cross-listed with CCS F603.
Lecture + Lab + Other: 3 + 0 + 0

ED F604  Documenting Indigenous Knowledge  (a)
3 Credits
Offered Fall
A thorough grounding in research methodologies and issues associated with documenting and conveying the depth and breadth of indigenous knowledge systems and their epistemological structures. Includes a survey of oral and literate data-gathering techniques, a review of various modes of analysis and presentation, and a practical experience in a real-life setting.
Recommended: Graduate-level survey course in research methods.
Cross-listed with CCS F604.
Lecture + Lab + Other: 3 + 0 + 0

ED F606  Alaska Native Education  (a)
3 Credits
Offered Fall
School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required.
Prerequisite: ANTH F242 and graduate standing.
Stacked with ANS F420; ED F420.
Lecture + Lab + Other: 3 + 0 + 0

ED F608  Indigenous Knowledge Systems
3 Credits
Offered Fall
A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.
Prerequisites: Graduate standing.
Cross-listed with CCS F608; RD F608; ANL F608.
Lecture + Lab + Other: 3 + 0 + 0

ED F610  Education and Cultural Processes
3 Credits
Offered As Demand Warrants
Advanced study of the function of education as a cultural process and its relation to other aspects of a cultural system. Students will be required to prepare a study in which they examine some aspect of education in a particular cultural context.
Cross-listed with CCS F610.
Lecture + Lab + Other: 3 + 0 + 0

ED F611  Culture, Cognition and Knowledge Acquisition
3 Credits
Offered Fall
An examination of the relationship between learning, thinking and perception in multicultural contexts. Particular emphasis will be on the implications of these relationships for schooling. Content will focus on cultural influences on perception, conceptual processes, learning, memory and problem solving. Content will also reflect concern for practical teaching problems.
Recommended: ED F610.
Cross-listed with CCS F611.
Lecture + Lab + Other: 3 + 0 + 0

ED F612  Foundations of Education
3 Credits
Offered Fall
Introduces a range of philosophical thought with emphasis on schooling in the cross-cultural context and on issues of social justice and quality in education. Students will explore the interplay between cultural processes and various philosophical positions adopted by educators in the design and practice of pedagogy, learn the history of public school education in the U.S. and Alaska and analyze the policies affecting public school education today.
Lecture + Lab + Other: 3 + 0 + 0

ED F613  Alaska Standards for Culturally Responsive Schools  (a)
3 Credits
Offered As Demand Warrants
Guidelines, rationale and resources for adapting educational policies, programs and practices to better address the cultural well-being of the students and communities they serve. Content will be grounded in the Alaska Standards for Culturally Responsive Schools, including standards for students, teachers, curriculum, schools and communities.
Cross-listed with CCS F613.
Lecture + Lab + Other: 3 + 0 + 0
ED F616  Education and Socioeconomic Change
3 Credits
Offered As Demand Warrants
An examination of social change processes, particularly in relation to the deliberate development of new institutions and resulting forms of new consciousness. Emphasis is placed on the role of education and schooling in this development dynamic.
Cross-listed with CCS F616.
Lecture + Lab + Other: 3 + 0 + 0

ED F619  Cultural Atlases as a Pedagogical Strategy
3 Credits
The content of the course provides an in-depth look at how teachers can integrate technology and academics with oral traditions and offers a vehicle for helping communities define themselves and their unique cultural identity. Teachers will have an opportunity to guide their students through a positive collaboration with local culture-bearers, community members and educational personnel. The multimedia resources for this course provide numerous examples of cultural atlases and guidance on ways in which the rich oral traditions of Native people can be drawn upon in support of the school curriculum.
Prerequisites: ANTH F242.
Cross-listed with CCS F619.
Stacked with CCS F418; ED F419.
Lecture + Lab + Other: 3 + 0 + 0

ED F620  Language, Literacy and Learning
3 Credits
Offered Spring
This course examines the relationship among language, culture and mind to understand literacy. Specific areas of emphasis include literacy theory, literacy acquisition, orality, critical literacy, multi-modal literacies, media literacy and future literacies. The goal is the understand literacy as a cultural and cognitive phenomenon that informs praxis. Fieldwork is required.
Lecture + Lab + Other: 3 + 0 + 1

ED F621  Cultural Aspects of Language Acquisition
3 Credits
An expanded view of the ways in which individuals become socialized into particular patterns of first and second language and literacy. The ongoing acquisition of both oral and written language(s) from early childhood through adult life. Topics will include: the cultural dimensions of language development; the relationship between communication and culture; bilingualism; and the role of language in the transmission of sociocultural knowledge.
Cross-listed with LING F621.
Lecture + Lab + Other: 3 + 0 + 0

ED F624  Foundations of Education in Alaska: From Segregation to Standards
3 Credits
Offered Summer As Demand Warrants
Review of major Alaska educational reform efforts as a means of understanding historical and current state, national and international policies and practices related to development of curriculum, pedagogy and assessment that respond to the needs and interests of culturally and linguistically diverse populations. Examination of Alaska Quality Schools Initiative reform effort with focus on use of Alaska Standards for Culturally Responsive Schools.
Prerequisites: Admission to Internship Year; a laptop computer.
Lecture + Lab + Other: 3 + 0 + 0

ED F625  Exceptional Learners and Child Development: Individual and Cultural Characteristics
3 Credits
Offered Summer As Demand Warrants
Foundation for understanding, identifying and teaching to developmental abilities of children and early adolescents. Human development examined in context of cognition, personality, social behavior, language and physical development with focus on understanding and using cross-cultural influences specific to Alaska. Emphasis on development of children with exceptional abilities. Design, develop and modify curriculum and instruction to developmentally and culturally appropriate approaches. Theory is applied to practice in practicum.
Prerequisites: Admission to Internship Year.
Lecture + Lab + Other: 3 + 0 + 0

ED F626  Teaching Reading, Writing and Language Arts
3 Credits
Offered Summer As Demand Warrants
Examination of the nature and process of reading and writing for elementary students and focus on process of developing a language arts program. Includes acquisition and role of language in this process. Examination and evaluation of materials and methods of teaching language arts, including those used in some Alaska districts. Examination and evaluation of children's literature. Practicum with application of language arts concepts.
Prerequisites: Admission to Internship Year.
Lecture + Lab + Other: 3 + 0 + 0

ED F631  Culture, Community and the Curriculum
3 Credits
Offered Fall
Salient issues involved with the development of effective programs of instruction in small schools, including foundational design, conceptual models, organizational strategies, technical skills, current issues and trends, and their implications and application to the environment of rural Alaska.
Cross-listed with CCS F631.
Lecture + Lab + Other: 3 + 0 + 0

ED F637  Designing Social Science Research Overview
2 Credits
Offered As Demand Warrants
Overview of designing social science research. Investigations into constructing and analyzing a variety of research designs and data collection methods for social science research. General procedures for conducting literature reviews. Includes overview of Institutional Review Board (IRB) policy and procedures. This course as the first (of six) of the series is intent on learning how to design research.
Prerequisites: ED F601, ED F603, or similar graduate level introductory research course.
Lecture + Lab + Other: 2 + 0 + 0
ED F638  Designing Social Science Research in Depth
2 Credits
Offered As Demand Warrants
In depth learning of quantitative and/or qualitative within social science research. Investigations into constructing and analyzing research designs and data collection methods for social science research. Introductions to the software applications of Atlas.ti for qualitative analysis and SPSS for quantitative analysis. This course as the second of the series is intent on completing students’ research design by looking ahead to data collection and refining all of the essential pieces such as problem statement, research questions, methodology and methods.
Prerequisites: ED F637.
Lecture + Lab + Other: 2 + 0 + 0

ED F640  Gender and Education
3 Credits
Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender, patterns of access and achievements, gender as an organizing principle in schools and classrooms, and feminist agendas and strategies for change.
Stacked with: ED F440, WGS F440.
Lecture + Lab + Other: 3 + 0 + 0

ED F647  Conducting Social Science Research Overview
2 Credits
Offered As Demand Warrants
Data collection techniques for quantitative and/or qualitative methods. Investigations into collecting and synthesizing quantitative and/or qualitative data for use in social science research. Includes software applications of Atlas.ti for qualitative analysis and SPSS for quantitative analysis. This course as the third of six of the series moves to actual data collection techniques connected to students’ social science research. Topics included are often not covered in many other courses such as how to create tools to gather the necessary data. Alignment with the methodology, research questions and design are built in throughout the series as the work here continues to build upon the courses prior.
Prerequisites: ED F638.
Lecture + Lab + Other: 2 + 0 + 0

ED F648  Conducting Social Science Research in Depth
2 Credits
Offered As Demand Warrants
In depth investigations into collecting and synthesizing quantitative and qualitative data for use in mixed methods research. Includes software applications of Atlas.ti for qualitative analysis and SPSS for quantitative analysis. This course as the fourth of six of the series is intent on completing the data collection by investigating psychometrics, looking ahead to data analysis and looking back for consistency with the methodology, research questions and research design.
Prerequisites: ED F647.
Lecture + Lab + Other: 2 + 0 + 0
ED F53 Instructional Design  
3 Credits  
Offered Spring As Demand Warrants  
Instructional design combines technology skills with application of learning theory to maximize the effectiveness of education. This course explores instructional design from a practical perspective. Students will acquire hands-on practice with a variety of computer-based tools while exploring instructional methods and principles of design.  
**Prerequisite:** Admission to the Master of Education program.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F654 Digital Citizenship, Internet Legal Issues, Digital Copyright and Fair Use  
3 Credits  
Offered Fall As Demand Warrants  
An examination of critical elements of digital citizenship, a survey of contemporary legal issues, and an exploration of copyright, fair use, and intellectual property relevant to educators and instructional designers. Also available through eLearning & Distance Education.  
**Prerequisites:** Admission to the Master of Education program.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F655 Online Pedagogy  
3 Credits  
Offered Fall As Demand Warrants  
A study of theory, tools and methods for teaching online courses. Topics include prominent learning theories, affordance of new technologies, strategies for assessment and techniques for classroom management in an online environment. Students will develop and articulate a personal philosophy of teaching and learning appropriate for the 21st Century.  
**Prerequisite:** Admission to the Master of Education program.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F659 Multimedia Tools for Educators  
3 Credits  
Offered Fall  
Emerging technologies and software applications in education. The use of multimedia in designing teaching/learning experiences will be emphasized. Students will develop a multimedia classroom presentation and will demonstrate knowledge of Internet resources.  
**Lecture + Lab + Other:** 1 + 6 + 0  

ED F660 Educational Administration in Cultural Perspective  
3 Credits  
Offered As Demand Warrants  
Issues related to the social organization and socio-political context of schools, administrative and institutional change processes and the changing role of administrators in education, using a cross-cultural framework for analysis.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F670 Developing Literacy: ECE-12  
3 Credits  
Offered Spring  
Explores literacy from early childhood through grade 12. Includes an emphasis on developmental aspects of literacy, underlying social and cognitive processes, cultural influences, and the pedagogical implications for teachers. Considers the needs of English language learners with respect to reading/literacy.  
**Prerequisite:** LING F602.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F673 Literacy in the Content Area  
3 Credits  
Offered Fall  
Students will develop knowledge of strategies that support literacy in the content areas. Emphasis is on the interrelated processes of thinking, writing, reading, listening and speaking of students across languages, modes, and genres. Technology as a tool to enhance disciplinary literacies is explored. The role of teacher as researcher is addressed.  
**Prerequisite:** ED F670.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F676 Supporting Learning in Diverse Systems  
3 Credits  
Offered Spring As Demand Warrants  
Provides students with the skills necessary to support student learning in a variety of managed and unmanaged computing environments. Students will explore methods of local and remote support, perform tasks to ensure an optimal managed learning environment for students and teachers, and create documentation for student and teacher use. Finally, students will step through the entire process of taking an idea for improving their learning environment by evaluating, implementing and instructing use of a solution of their choice.  
**Prerequisites:** Admission to the Master of Education program.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F677 Digital Storytelling  
3 Credits  
Offered Spring As Demand Warrants  
This course examines the principles of storytelling in general and digital storytelling in particular, paying close attention to the use of digital storytelling to inform, persuade and entertain across a variety of social and cultural institutions. Elements of digital storytelling will be investigated and used to create original digital stories in a variety of media.  
**Prerequisites:** Admission to the Master of Education program.  
**Lecture + Lab + Other:** 3 + 0 + 0  

ED F678 Mathematics Methods and Curriculum Development  
3 Credits  
Offered Fall  
Study and application in the classroom of best practices from research-based strategies for the teaching and learning of mathematical concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of mathematics unit. Concurrent internship required.  
**Prerequisites:** Admission to the post-baccalaureate elementary licensure program; graduate standing.  
**Stacked with** ED F478.  
**Lecture + Lab + Other:** 2 + 0 + 8  

ED F681 Place-based Education  
3 Credits  
Offered Spring  
An examination of the relationship between local landscape and community and the development of human perception. Emphasis on the importance of the development of ecologically appropriate community-based educational programs in rural and urban schools. Priority placed on project-centered programs lending themselves to experimental learning opportunities. Includes literature review, discussion, curriculum exploration and design and on-site community exploration of active place-based educational programs.  
**Lecture + Lab + Other:** 3 + 0 + 0
ED F682  Rethinking Multicultural Education  
3 Credits  
Offered Fall Odd-numbered Years  
This multi-disciplinary course focuses on two parts: Critically analyze and reflect on current multicultural education issues at the national, state and local level and translate/apply what is learned to individual classrooms, schools, school districts and beyond. Topics include children of immigrants, Alaska Native education, culturally relevant education, social justice education and exploring ways to create stronger family-community-school partnerships. Fieldwork is required.  
Prerequisite: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 1

ED F683  Instruction and Assessment in Literacy  
3 Credits  
Offered Spring  
Examines standardized language and literacy assessments and how they are used in schools, with emphasis on the needs of English Language Learners. Formal and informal assessments are discussed and evaluated. The links between assessment and instruction and the implications for teachers, families, and communities are addressed. Students will apply course content in conducting teacher action research.  
Prerequisites: ED F673.  
Lecture + Lab + Other: 3 + 0 + 0

ED F687  Alaska: Resources, People and Perspectives (a)  
3 Credits  
Offered Spring  
Introduces a broad range of essential Alaska information for educators including information on history, geography, literature, economics and politics.  
Lecture + Lab + Other: 3 + 0 + 0

ED F688  Science Methods and Curriculum Development  
3 Credits  
Offered Spring  
Study and application in the classroom of the best practices from research-based strategies for the teaching and learning of science concepts, content and methods for students in elementary classrooms with diverse populations. Requires development and classroom implementation of science unit. Classroom internship required.  
Prerequisites: Admission to the post-baccalaureate elementary licensure program; graduate standing.  
Stacked with ED F479.  
Lecture + Lab + Other: 2.5 + 0 + 4

ED F689  Proseminar in Applied Educational Research  
3 Credits  
Offered As Demand Warrants  
Application of social science and educational research methods to the description and analysis of the student’s research topic. The research topic chosen will be the substance of each student’s literature review and synthesizing paper. Conceptually integrated with ED F698 (to be taken a subsequent semester), where the final master’s project is completed. Completion and approval of the synthesizing paper, by the committee, is required for successful completion of this course. Note: Acceptance into an M.Ed. degree program; completion of all required core courses; at least nine credits in the area of concentration.  
Lecture + Lab + Other: 3 + 0 + 0

ED F690  Seminar in Cross-cultural Studies  
3 Credits  
Offered As Demand Warrants  
Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.  
Prerequisites: Advancement to candidacy; permission of student's graduate committee.  
Cross-listed with CCS F690; ANL F690; RD F690.  
Lecture + Lab + Other: 3 + 0 + 0

ED F691  Contemporary Issues in Education  
3 Credits  
Offered As Demand Warrants  
A critical overview of the current status of the field of education. Students will participate in a thorough investigation of select problems, trends and issues that presently characterize the institution of public education. Seminar sessions will focus on student research regarding the development, present impact and potential implications of each topic discussed.  
Lecture + Lab + Other: 3 + 0 + 0

ED F692  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

ED F692P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

ED F698  Non-thesis Research/Project  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0

ED F699  Thesis  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 0

Education: Secondary Education (EDSC)

EDSC F110  Becoming a Middle/High School Teacher  
1 Credit  
Offered Fall and Spring  
This course familiarizes students with requirements for becoming a middle or high school teacher. Advisors from the School of Education, guest presenters from area school districts address issues pertaining to licensure and teaching. Current issues in secondary teaching are addressed. Participation in a secondary classroom is required.  
Lecture + Lab + Other: 1 + 0 + 0

EDSC F205  Introduction to Secondary Education  
3 Credits  
Offered Spring, As Demand Warrants  
Introduction to the profession of teaching in middle/high school. Incorporates historical, cultural and sociological factors, with attention to the Alaska context influencing current practice. Students will have the opportunity to explore current issues and reform facing educators today and to observe master teachers in the field.  
Prerequisites: WRTG F111X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0.5
EDSC F402  Methods of Teaching in the Secondary School  
3 Credits  
Offered Fall  
Focus on methodologies appropriate for teaching middle and high school students in a variety of settings. Candidates explore the structure of schools, the nature of their audiences and will plan, implement and assess both teacher and student centered instructional strategies. Includes Alaska Content/Performance Standards.  
Prerequisites: Admission to Internship Year.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F407  Developing Literacy in the Content Areas  
3 Credits  
Offered Summer or As Demand Warrants  
Preparation for secondary teachers (middle school, junior, and senior high school) to integrate listening, speaking, reading, writing and viewing strategies into a content area of the classroom. Candidates examine and evaluate learning theories related to literacy development and varied methods of instruction and assessment to help design and develop an appropriate pedagogical model for teaching.  
Recommended: Completion of a freshman academic writing course; EDSC F205 or EDSC F415; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F414  Learning, Development and Special Needs Instruction  
3 Credits  
Offered Summer  
Survey of learning theory, adolescent development and special needs instruction. Attention will be given to the cognitive, social and moral theories of development, and to current theories of learning. Consideration will be given to cultural and individual differences among learners including those with special needs. Completion of EDSC F205 or EDSC F415 is recommended prior to enrollment in this course.  
Prerequisites: WRTG F111X; junior standing or above.  
Stacked with EDSC F614.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F415  Foundations of Modern Educational Practice  
3 Credits  
Offered Summer  
Historical, political, sociological and curricular foundations of secondary education in the U.S. with particular attention to Alaska. For pre-service teachers to understand and reflect on the teaching profession at the secondary level and to explore current issues and controversies confronting education at national, state and local levels.  
Prerequisites: WRTG F111X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F431  Secondary Instruction and Assessment in the Content Area  
3 Credits  
Offered Fall  
Methodologies of instruction and assessment in the candidate’s specific content area. Course is taught by content specialists. Discusses current issues, methodologies and teaching strategies specific to the various disciplines. A maximum of nine credits may be earned.  
Prerequisites: Admission to the secondary post-baccalaureate licensure program.  
Stacked with EDSC F631.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F432  English/Language Arts Secondary Instruction and Assessment  
3 Credits  
Offered Fall  
Methodologies of instruction and assessment in English/language arts. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to English/language arts.  
Prerequisites: Admission to the Internship year.  
Stacked with EDSC F632.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F433  Mathematics Secondary Instruction and Assessment  
3 Credits  
Offered Fall  
Methodologies of instruction and assessment in mathematics. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies and practical application lessons for teaching mathematics.  
Prerequisites: Admission to Internship year.  
Stacked with EDSC F633.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F434  Science Secondary Instruction and Assessment  
3 Credits  
Offered Fall  
Methodologies of instruction and assessment in science. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, inquiry-based lessons, laboratory experiences and field trips for teaching science.  
Prerequisites: Admission to Internship year.  
Stacked with EDSC F634.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F435  Social Studies Secondary Instruction and Assessment  
3 Credits  
Offered Fall  
Methodologies of instruction and assessment in social studies. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, project-based activities and community-as-laboratory experiences for teaching social studies.  
Prerequisites: Admission to the Internship year.  
Stacked with EDSC F635.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F436  Art Secondary Instruction and Assessment  
3 Credits  
Offered Fall  
Methodologies of instruction and assessment in art. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to arts.  
Prerequisites: Admission to Internship year.  
Stacked with EDSC F636.  
Lecture + Lab + Other: 3 + 0 + 0
EDSC F437  World Language Secondary Instruction and Assessment  (a)
3 Credits
Offered As Demand Warrants
Methodologies of instruction and assessment in world languages. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, and current application of teaching strategies and assessment specific to world languages.
Prerequisites: Admission to the Internship year.
Stacked with EDSC F637.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F442  Technology Applications in Education I
1 Credit
Offered Fall
The course focuses on initial instruction in educational technology and applications as a resource for the delivery of instruction to enhanced student learning. The course is designed to introduce participants to technology tools to create, implement and assess instructional material in a variety of media. Participants will set up a professional electronic portfolio that demonstrates professional development and achievement relative to the ISTE National Technology Standards for Students and Teachers, Alaska Education Standards, and integrated with Standards for Culturally Responsive Schools.
Prerequisites: Admission to the Internship year.
Stacked with EDSC F642.
Lecture + Lab + Other: 1 + 0 + 0

EDSC F443  Technology Application in Education II
2 Credits
Offered Spring
The course is designed to increase participants’ use of technology tools to create and implement instructional material in a variety of media to support and assess learning. Participants will develop an electronic portfolio that demonstrates professional development and achievement relative to the ISTE National Technology Standards for Students and Teachers, Alaska Education Standards and integrated with Standards for Culturally Responsive Schools.
Prerequisites: Successful completion of EDSC F442.
Stacked with EDSC F643.
Lecture + Lab + Other: 2 + 0 + 0

EDSC F457  Multicultural Education and School-community Relations
4 Credits
Offered Spring
Focuses on the philosophy and theories underlying multicultural education as well as the development of positive school community relationships. Encourages pre-service educators to identify their own philosophy and culture and to recognize their cultural background as they instruct, assess and manage their students. Helps educators clarify the value of diversity in the classroom setting. Candidates discern the influence of diversity factors on students’ educational careers and the value of diversity to the Alaskan community. Acquaints candidates with teaching in rural Alaska. Explores models for effective teaching, means of village socialization, cultural information and programs that are particularly effective in rural and small school settings.
Prerequisites: Admission to Internship year.
Stacked with EDSC F657.
Lecture + Lab + Other: 3 + 0 + 1

EDSC F458  Classroom Organization and Management
3 Credits
Offered Fall
Focus on establishment of a positive learning environment, development of a successful discipline plan consistent with an educator’s philosophy of education and a review of the major discipline models. Candidates will examine the role that factors such as culture, gender, interest, ability and exceptionality play in student’s behavior. Techniques to maintain positive student-teacher interactions in the classroom and establish a positive relationship with parents. Developing strategies to incorporate local knowledge and community culture in to classroom practice. Field experience required. Completion of EDSC F205 or EDSC F415 is recommended prior to enrollment in this course.
Prerequisites: WRTG F111X; junior standing or above.
Stacked with EDSC F658.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F471  Secondary Teaching: School Internship I and Seminar
3 Credits
Offered Fall
Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and the integration of technology across the curriculum. The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.
Prerequisites: Admission to secondary post-baccalaureate licensure program.
Stacked with EDSC F671.
Lecture + Lab + Other: 1 + 3 + 15

EDSC F472  Secondary Teaching: School Internship II and Seminar  (O)
3-9 Credits
Offered Spring
Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and the integration of technology across the curriculum. Credits may be added upon completion of designated special projects developed by students and faculty. The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.
Prerequisites: COJO F131X or COJO F141X; admission to the secondary post-baccalaureate licensure program.
Stacked with EDSC F672.
Lecture + Lab + Other: 1 + 6 + 29

EDSC F614  Learning, Development and Special Needs Instruction
3 Credits
Offered Summer
Survey of learning theory, adolescent development and special needs instruction. Attention will be given to the cognitive, social and moral theories of development, and to current theories of learning. Consideration will be given to cultural and individual differences among learners including those with special needs. Completion of EDSC F205 or EDSC F415 is recommended prior to enrollment in this course.
Stacked with EDSC F414.
Lecture + Lab + Other: 3 + 0 + 0
EDSC F631 Secondary Instruction and Assessment in the Content Area
3 Credits
Offered Fall
Methodologies of instruction and assessment in the candidate's specific content area. Course is taught by content specialists. Discusses current issues, methodologies and teaching strategies specific to the various disciplines. A maximum of nine credits may be earned.
Prerequisites: Admission to the secondary post-baccalaureate licensure program.
Stacked with EDSC F431.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F632 English/Language Arts Secondary Instruction and Assessment
3 Credits
Offered Fall
Methodologies of instruction and assessment in English/language arts. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to English/language arts.
Prerequisites: Admission to Internship year.
Stacked with EDSC F432.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F633 Mathematics Secondary Instruction and Assessment
3 Credits
Offered Fall
Methodologies of instruction and assessment in mathematics. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies and practical application lessons for teaching mathematics.
Prerequisites: Admission to Internship year.
Stacked with EDSC F433.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F634 Science Secondary Instruction and Assessment
3 Credits
Offered Fall
Methodologies of instruction and assessment in science. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, inquiry-based lessons, laboratory experiences and field trips for teaching science.
Prerequisites: Admission to the Internship year.
Stacked with EDSC F434.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F635 Social Studies Secondary Instruction and Assessment
3 Credits
Offered Fall
Methodologies of instruction and assessment in social studies. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, project-based activities and community-as-laboratory experiences for teaching social studies.
Prerequisites: Admission to Internship year.
Stacked with EDSC F435.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F636 Art Secondary Instruction and Assessment
3 Credits
Offered Fall
Methodologies of instruction and assessment in art. Course is taught by content specialists. Includes discussion of current issues, methodologies and teaching strategies specific to arts.
Prerequisites: Admission to Internship year.
Stacked with EDSC F436.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F637 World Language Secondary Instruction and Assessment (a)
3 Credits
Offered As Demand Warrants
Methodologies of instruction and assessment in world languages. Course is taught by content specialists. Includes discussion of current issues, diverse methodologies, and current application of teaching strategies and assessment specific to world languages.
Prerequisites: Admission to the Internship year.
Stacked with EDSC F437.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F642 Technology Applications in Education I
1 Credit
Offered Fall
The course focuses on initial instruction in educational technology and applications as a resource for the delivery of instruction to enhanced student learning. The course is designed to introduce participants to technology tools to create, implement and assess instructional material in a variety of media. Participants will set up a professional electronic portfolio that demonstrates professional development and achievement relative to the ISTE National Technology Standards for Students and Teachers, Alaska Education Standards, and integrated with Standards for Culturally Responsive Schools.
Prerequisites: Admission to the Internship year.
Stacked with EDSC F442.
Lecture + Lab + Other: 1 + 0 + 0

EDSC F643 Technology Application in Education II
2 Credits
Offered Spring
The course is designed to increase participants' use of technology tools to create and implement instructional material in a variety of media to support and assess learning. Participants will develop an electronic portfolio that demonstrates professional development and achievement relative to the ISTE National Technology Standards for Students and Teachers, Alaska Education Standards and integrated with Standards for Culturally Responsive Schools.
Prerequisites: Successful completion of EDSC F642.
Stacked with EDSC F443.
Lecture + Lab + Other: 2 + 0 + 0
EDSC F657  Multicultural Education and School-community Relations  
4 Credits  
Offered Spring  
Focuses on the philosophy and theories underlying multicultural education as well as the development of positive school community relationships. Encourages pre-service educators to identify their own philosophy and culture and to recognize their cultural background as they instruct, assess and manage their students. Helps educators clarify the value of diversity in the classroom setting. Candidates discern the influence of diversity factors on students’ educational careers and the value of diversity to the Alaskan community. Acquaints candidates with teaching in rural Alaska. Explores models for effective teaching, means of village socialization, cultural information and programs that are particularly effective in rural and small school settings.  
Prerequisites: Admitted to the Internship year.  
Stacked with EDSC F457.  
Lecture + Lab + Other: 3 + 0 + 1

EDSC F658  Classroom Organization and Management  
3 Credits  
Offered Fall  
Focus on establishment of a positive learning environment, development of a successful discipline plan consistent with an educator’s philosophy of education and a review of the major discipline models. Candidates will examine the role that factors such as culture, gender, interest, ability and exceptionality play in student’s behavior. Techniques to maintain positive student-teacher interactions in the classroom and establish a positive relationship with parents. Developing strategies to incorporate local knowledge and community culture into classroom practice. Field experience required. Completion of EDSC F205 or EDSC F415 is recommended prior to enrollment in this course.  
Stacked with EDSC F458.  
Lecture + Lab + Other: 3 + 0 + 0

EDSC F671  Secondary Teaching: School Internship I and Seminar  
3 Credits  
Offered Fall  
Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and the integration of technology across the curriculum. The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.  
Prerequisites: Admission to secondary post-baccalaureate licensure program.  
Stacked with EDSC F471.  
Lecture + Lab + Other: 1 + 3 + 15

EDSC F672  Secondary Teaching: School Internship II and Seminar  
(O)  
3-9 Credits  
Offered Spring  
Supervised observation and teaching in secondary schools approved by the School of Education. Seminar topics may include special attention to school-community relations, special needs, curriculum development, teaching strategies and the integration of technology across the curriculum. Credits may be added upon completion of designated special projects developed by students and faculty. The School of Education may limit enrollment, determine assignments and cancel registration of candidates doing unsatisfactory work.  
Prerequisites: COJO F131X or COJO F141X; admission to the secondary post-baccalaureate licensure program.  
Stacked with EDSC F472.  
Lecture + Lab + Other: 1 + 6 + 29

Education: Special Education (EDSE)

EDSE F316  Introduction to Special Education for Elementary Classroom Teachers  
3 Credits  
Offered Fall and Spring  
The course provides an introduction to special education for students preparing to become an elementary classroom teacher. It provides an in-depth understanding of concepts, strategies and issues identifying and supporting the needs of elementary students who experience disabilities. Course content includes reviews of all categorical disabilities, developmental disabilities, and laws pertinent to elementary-aged children's disabilities. Requires fieldwork in an elementary special education classroom or an inclusive general elementary classroom.  
Prerequisites: ED F201 and Praxis I.  
Lecture + Lab + Other: 2.5 + 0 + 1

EDSE F320  Adapting and Accommodating Instructions for Students with Disabilities  
3 Credits  
Offered Fall and Spring  
Methods of instruction and strategies for addressing the needs of students with mild learning and behavior problems. A theoretical basis for selecting approaches is presented along with practical strategies that can be used in the classroom. Field experience required.  
Prerequisites: ED F201; EDSE F316.  
Lecture + Lab + Other: 2.5 + 0 + 1

EDSE F422  Curriculum, Management and Strategies II: High Incidence  
3 Credits  
Provides in-depth understanding of best practice strategies for supporting students with high incidence disabilities. A theoretical basis for selecting approaches is presented along with practical strategies of methods of instruction and classroom management for addressing the needs of students. Development, implementation, support and evaluation of Individual Education Program (IEP) plan for students with high incidence disabilities as well as classroom management techniques and plans developed for inclusion of high incidence disabilities in culturally responsive ways. Field experience and research are required.  
Stacked with EDSE F622.  
Lecture + Lab + Other: 3 + 0 + 1
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE F448</td>
<td>Understanding FASD: Diagnosis, Intervention and Strategies</td>
<td>3</td>
<td></td>
<td></td>
<td>This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting. Cross-listed with PSY F448. Stacked with EDSE F648; PSY F648. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>EDSE F482</td>
<td>Inclusive Classrooms for All Children</td>
<td>3</td>
<td></td>
<td></td>
<td>An in-depth understanding of concepts, strategies and issues that surround supporting the needs of students who experience disabilities in the general education classroom. Field experience required. Note: Elementary Education students are required to submit Praxis I scores to School of Education prior to enrolling in EDSE F482. Prerequisites: ED F201. Lecture + Lab + Other: 2.5 + 0 + 1</td>
</tr>
<tr>
<td>EDSE F605</td>
<td>Early Childhood Special Education</td>
<td>3</td>
<td></td>
<td></td>
<td>Offered Fall; As Demand Warrants Survey of philosophical, legal, and programmatic foundations of early childhood special education; characteristics of young children with disabilities; strategies to support young children with disabilities in inclusive settings; development, implementation, and evaluation of Individual Family Services Program (IFSP) plans in culturally diverse settings. Field experience required. Lecture + Lab + Other: 3 + 0 + 1</td>
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<tr>
<td>EDSE F610</td>
<td>Assessment of Students with Exceptionalities</td>
<td>3</td>
<td></td>
<td></td>
<td>Offered Fall Techniques and methods used for assessing students with disabilities. Focuses on the purpose of assessment, testing terminology and statistics, and administration and interpretation of formal and informal assessment procedures. Address assessment issues in all Alaskan communities. Field experience required. Lecture + Lab + Other: 3 + 0 + 1</td>
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<tr>
<td>EDSE F612</td>
<td>Curriculum, Management and Strategies I: Low Incidence</td>
<td>3</td>
<td></td>
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<td>Offered Spring Provides in-depth understanding of best practice strategies for supporting students with low incidence disabilities in culturally responsive ways. Development, implementation and evaluation of Individual Education Program (IEP) plan emphasizing transition plans for students with intensive needs that include a crisis management plan for severe behaviors. Community-based collaborative management techniques and plans will be developed to support post-school transitions. Field experience required. Lecture + Lab + Other: 3 + 0 + 1</td>
</tr>
<tr>
<td>EDSE F622</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td>3</td>
<td></td>
<td></td>
<td>Provides in-depth understanding of best practice strategies supporting students with high incidence disabilities. A theoretical basis for selecting approaches is presented along with practical strategies of methods of instruction and classroom management for addressing the needs of students. Development, implementation, support and evaluation of Individual Education Program (IEP) plan for students with high incidence disabilities as well as classroom management techniques and plans developed for inclusion of high incidence disabilities in culturally responsive ways. Field and research experience required. Stacked with EDSE F422. Lecture + Lab + Other: 3 + 0 + 1</td>
</tr>
<tr>
<td>EDSE F624</td>
<td>Social/Emotional Development, Assessment and Intervention</td>
<td>3</td>
<td></td>
<td></td>
<td>Offered Fall; As Demand Warrants Review current research on typical and atypical social/emotional development within a cultural context. Emphasizes the use of research-based practices in assessment and intervention. Explores academic and cultural diversity in the social/emotional growth of students with learning differences. Field experience required. Lecture + Lab + Other: 3 + 0 + 1</td>
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<tr>
<td>EDSE F625</td>
<td>Teaching Mathematics to Special Learners</td>
<td>3</td>
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<td>Offered Fall Provides assessment and diverse instructional strategies in mathematics for teachers of students with disabilities. Focuses on standards-based instruction, explicit instruction, curriculum-based assessments and preparation of students for high stakes testing, as well as consumer math for special needs learners who need to develop functional skills. Field experience required. Lecture + Lab + Other: 3 + 0 + 1</td>
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<tr>
<td>EDSE F632</td>
<td>Special Education Law: Principles and Practices</td>
<td>3</td>
<td></td>
<td></td>
<td>Offered Summer Examines three federal laws that form the foundation of disability law: Individuals with Disabilities Education Act (IDEA) 2004, Section 504 of the Rehabilitation Act of 1973; and the Americans with Disabilities Act. Focuses on substantive principles that underlie procedural requirements including due process issues, case law analysis, policy changes and the creation of a legally defensible Individual Educational Program (IEP). Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>EDSE F633</td>
<td>Autism and Other Developmental Disabilities: Communication and Social Interventions</td>
<td>3</td>
<td></td>
<td></td>
<td>Offered Spring; As Demand Warrants Current methods for assessment and intervention of students with autism and other developmental disabilities. Current issues and trends affecting educational practices are analyzed. Case study method used to make assessment and instructional decisions for pro-social solutions. Parent communication is emphasized. Field experience required. Lecture + Lab + Other: 3 + 0 + 1</td>
</tr>
</tbody>
</table>
EDSE F640    Culturally Responsive Collaboration: Working with Parents, Colleagues and Paraprofessionals
3 Credits
Offered Spring; As Demand Warrants
How to coordinate with regular education teachers, paraprofessionals, speech language therapists, Alaska Native Education Liaisons, coaches, principals, counselors and outside agencies in culturally responsive ways. Field experience required.
Lecture + Lab + Other: 3 + 0 + 1

EDSE F642    Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions
3 Credits
Offered Summer; As Demand Warrants
Review functional behavioral assessments, development of behavior plans, evaluation of sensory issues, use of social stories, social skills and life skills instruction to assist inclusive practices of students with autism spectrum disorders and other developmental disabilities. Field experience required.
Lecture + Lab + Other: 3 + 0 + 1

EDSE F648    Understanding FASD: Diagnosis, Intervention and Strategies
3 Credits
This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting. Research projects required.Stacked with EDSE F448; PSY F448
Prerequisites: Graduate standing.
Cross-listed with PSY F648.
Lecture + Lab + Other: 3 + 0 + 0

EDSE F677    English Language Arts Assessment, Curriculum and Strategies for Special Learners
3 Credits
Offered Spring; As Demand Warrants
Provides in-depth review and analysis of current research on language and English Language Arts (reading, writing and spelling) acquisition, assessment and intervention. Emphasizes the use of evidence-based practices. Identifies the link between language and literacy development. Considers academic, cultural and linguistic diversity. Field experience required.
Lecture + Lab + Other: 3 + 0 + 1

EDSE F678    Special Education Clinical Practice: Initial
3 Credits
For initial licensure candidates only. Part-time fieldwork experience (minimum 120 hours) with individuals who have disabilities in approved K-12 public schools and affiliated facilities. Fieldwork assignments are in inclusive pullout and self-contained settings. Includes immersion in special education planning and teaching under the direction of a supervising teacher and university supervisor. Includes regularly scheduled seminars. Must be completed before enrollment in EDSE F680.
Prerequisites: Successful completion of 18 approved credits in graduate level special education course work.
Lecture + Lab + Other: 3 + 0 + 20

EDSE F680    Special Education Clinical Practice
3 Credits
For certified and initial licensure special education candidates. Full time field experience with individuals who have disabilities in approved K-12 public schools and affiliated facilities. Fieldwork assignments vary across areas of teaching specialization. Candidates assume full classroom responsibilities for planning, instruction and assessment under the direction of site and university supervisors. Includes regular seminars.
Prerequisites: Successful completion of 18 approved credits in graduate level special education course work; EDSE F678 (for initial licensure students only).
Lecture + Lab + Other: 1 + 0 + 35

EDPA F110    Introduction to Para-professional Education
2 Credits
The roles and responsibilities of the para-professional educator, including requirements of confidentiality, school policies and procedures, and rights and responsibilities, of parents students and school staff.
Recommended: ABUS F170; DEVS F104; WRTG F111X or above.
Lecture + Lab + Other: 2 + 0 + 0

EDPA F120    Classroom Management
2 Credits
Offered As Demand Warrants
Comprehensive course to observe and document a variety of strategies for effective classroom organization, management and communication. Students will discuss and reflect upon the relationship between classroom management and student learning and learn strategies for establishing a positive classroom environment.
Recommended: ABUS F170; DEVS F104; WRTG F111X or above.
Lecture + Lab + Other: 2 + 0 + 0

EDPA F130    Differentiating Instruction
2 Credits
Offered As Demand Warrants
Different modalities of learning and teaching strategies necessary for meeting individual learners' needs. Course may be repeated once for credit.
Recommended: ABUS F170; DEVS F104; WRTG F111X or above.
Lecture + Lab + Other: 2 + 0 + 0

EDPA F140    Developing Children as Writers
1 Credit
Offered As Demand Warrants
How to assist teachers in assessing student writing skills and developing children as writers. Para-professionals will become skilled in linking writing to the culture and environment of the child. Course may be repeated twice for credit.
Recommended: ABUS F170; DEVS F104; WRTG F111X or above.
Lecture + Lab + Other: 1 + 0 + 0

EDPA F150    Developing Children as Readers
1 Credit
Offered As Demand Warrants
Developing skills necessary for assisting teachers in using best practices in teaching reading in the elementary classroom. Para-professionals will become skilled in linking reading to the culture and environment of the child. Course may be repeated twice for credit.
Lecture + Lab + Other: 1 + 0 + 0

ABUS F170; DEVS F104; WRTG F111X or above.
EDPA F160  Primary Math Methods  
1 Credit  
Offered As Demand Warrants  
Developing the skills necessary for assisting teachers in using best practices in teaching math in the primary classroom. Para-professionals will become skilled in linking mathematics to the culture and environment of the child. Course may be repeated twice for credit.  
**Lecture + Lab + Other:** 1 + 0 + 0

EDPA F170  Upper Elementary Math Methods  
1 Credit  
Offered As Demand Warrants  
Developing the skills necessary for assisting teachers in using best practices in teaching math in the elementary classroom. Para-professionals will become skilled in linking mathematics to the culture and environment of the child. Course may be repeated three times for credit.  
**Lecture + Lab + Other:** 1 + 0 + 0

EDPA F190  Integrating Local Knowledge into the Curriculum  
1 Credit  
Offered As Demand Warrants  
Learn the prehistory, history and culture of the students' communities and regions, and strategies for integrating this knowledge into the school curriculum. Course may be repeated three times for credit.  
**Lecture + Lab + Other:** 1 + 0 + 0

EDPA F199  Practicum I  
1 Credit  
Offered As Demand Warrants  
Individualized work experience. The student will work as a para-professional in the classroom with a teacher or para-professional over a sustained period of at least three weeks. Course may be repeated once for credit.  
**Recommended:** EDPA F110.  
**Lecture + Lab + Other:** 1 + 0 + 0

EDPA F210  Technology in the Classroom  
1 Credit  
Offered As Demand Warrants  
Comprehensive introduction to various ways that technology can be utilized in the classroom. Students will be exposed to practical computer use such as exploring software, electronic grade books, lesson plans, graphics, digital photography, internet use and Internet safety. Course may be repeated once for credit.  
**Prerequisites:** CIOS F100.  
**Lecture + Lab + Other:** 0.5 + 1 + 0

EDPA F250  Current Topics for Educators  
1 Credit  
Offered As Demand Warrants  
Focus on in-service training offered through school districts to update and train para-professionals and teachers on the use of district curriculum, policies, procedures, etc. Course may be repeated three times for credit.  
**Lecture + Lab + Other:** 1 + 0 + 0

EDPA F299  Practicum II  
1 Credit  
Offered As Demand Warrants  
Individualized work experience. The student will work as a para-professional in the classroom with a teacher or para-professional over a sustained period of at least three weeks. Course may be repeated once for credit.  
**Recommended:** EDPA F110.  
**Lecture + Lab + Other:** 1 + 0 + 0

**Electrical Engineering (EE)**

EE F102  Introduction to Electrical and Computer Engineering  
3 Credits  
Offered Spring  
Basic modern devices, concepts, technical skills and instruments of electrical engineering.  
**Prerequisite:** MATH F251X (may be taken concurrently).  
**Lecture + Lab + Other:** 2 + 3 + 0

EE F203  Electric Circuits  
4 Credits  
Offered Fall  
Introduces DC and AC circuit analysis techniques including transient analysis, steady state analysis, three phase circuits and ideal amplifiers.  
**Prerequisites:** MATH F251X; MATH F252X (both MATH F251X and MATH F252X may be taken concurrently); EE F102.  
**Lecture + Lab + Other:** 3 + 3 + 0

EE F204  Electrical Engineering Fundamentals II  
4 Credits  
Offered Spring  
Electronics of solid state devices, amplifier design, digital circuits, electromechanics, control systems and instrumentation.  
**Prerequisites:** MATH F253X (may be taken concurrently); EE F203; MATH F252X.  
**Lecture + Lab + Other:** 3 + 3 + 0

EE F303  Electrical Machinery  
4 Credits  
Offered Fall  
Electromechanical energy conversion principles, characteristics and applications of transformers, synchronous and induction machines, DC machines, and special machines.  
**Prerequisites:** EE F204.  
**Lecture + Lab + Other:** 3 + 3 + 0

EE F311  Engineering Electromagnetics I  
3 Credits  
Offered Fall  
Electromagnetic theory and applications. Static electric fields in free space and material media; steady current systems and associated magnetic effects. Includes electrostatics, magnetostatics, Maxwell's equations, electromagnetic wave propagation, and transmission lines. Application of the wave equations to engineering systems.  
**Prerequisites:** MATH F302 (may be taken concurrently); EE F204; MATH F253X; PHYS F212X.  
**Lecture + Lab + Other:** 3 + 0 + 0
EE F331  High-frequency Lab  

1 Credit  
Offered Fall  
Laboratory experiments in transmission lines, impedances, bridges, scattering parameters, hybrids and waveguides.  
Prerequisite: EE F311.  
Lecture + Lab + Other: 0 + 3 + 0  

EE F333  Electronic Devices  (W)  

4 Credits  
Offered Fall  
An introduction to the properties of semiconductors and the analysis of electronics and electrical devices including diodes, field effect transistors (FETs), bipolar junction transistors (BJTs). Large signal and small signal analysis techniques, and common electrical circuit topologies.  
Prerequisites: EE F204; WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 3 + 0  

EE F334  Electronic Circuit Design  

4 Credits  
Offered Spring  
Application of semiconductor devices in circuit design in computation, automatic control and communication.  
Prerequisites: EE F333.  
Lecture + Lab + Other: 3 + 3 + 0  

EE F341  Digital and Computer Analysis and Design  

4 Credits  
Offered Fall  
Modular structure of computer systems. Analysis, design and implementation of combinational and sequential logic machines. Introduction to microprocessor architecture and microprocessor programming. Design with traditional and hardware description language techniques.  
Prerequisites: CS F201; one year of college physics.  
Lecture + Lab + Other: 3 + 3 + 0  

EE F343  Digital Systems Analysis and Design  

4 Credits  
Offered Fall  
Fundamental principles and practices of digital design. Analysis, design and implementation of combinational and sequential logic machines. Introduction to microprocessor architecture and microprocessor programming. Analysis of digital data transmission techniques and microprocessor interfacing. Design with traditional and hardware description language techniques. Implementation with both medium and large scale integrated (M/LSI) chips and programmable logic devices (PLDs).  
Prerequisites: ES F201 or CS F201; EE F204; EE F333 (may be taken concurrently).  
Lecture + Lab + Other: 3 + 3 + 0  

EE F354  Engineering Signal Analysis  

3 Credits  
Offered Spring  
Prerequisites: EE F353; MATH F302.  
Lecture + Lab + Other: 3 + 0 + 0  

EE F404  Electrical Power Systems  

4 Credits  
Offered Spring  
Electrical power transmission and distribution systems, power flow, symmetrical faults, and economic dispatch with computer-aided analysis.  
Prerequisites: EE F303.  
Lecture + Lab + Other: 3 + 3 + 0  

EE F406  Electrical Power Engineering  

4 Credits  
Offered Fall  
Economic operation of power systems, symmetrical and unsymmetrical faults, power system protection, dynamic power system stability, and computer-aided fault and transient stability analysis.  
Prerequisites: EE F404.  
Lecture + Lab + Other: 3 + 3 + 0  

EE F408  Power Electronics Design  (O, W)  

4 Credits  
Offered Spring  
Analysis and design of power electronic conversion, control and drive systems. Topics will include the theory and application of thyristors, rectifiers, DC-DC converters, inverters, resonant converters, AC and DC switches and regulators, power supplies, DC drives and adjustable-speed drives, including variable-frequency drives. Includes laboratory exercises using power electronic converter boards, PSPICE, and a complete power electronics design project.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; EE F303; EE F334; EE F354; senior standing.  
Stacked with EE F608.  
Lecture + Lab + Other: 3 + 3 + 0  

EE F412  Engineering Electromagnetics II  

3 Credits  
Offered Spring  
Use of Maxwell's equations in analysis of plane wave propagation, wave reflection, radiation and antennas, waveguides, cavity resonators, transmission lines and radio propagation.  
Prerequisites: EE F311; EE F331; MATH F302.  
Lecture + Lab + Other: 3 + 0 + 0  

EE F432  Electromagnetics Laboratory  

1 Credit  
Laboratory experiments with microwave sources, propagating electromagnetic waves, waveguides and antennas. Design, construction and testing of antenna systems.  
Corequisites: EE F412.  
Lecture + Lab + Other: 0 + 3 + 0
EE F443  Computer Engineering Analysis and Design  
4 Credits  
Offered Spring  
Advanced digital design, and principles and practices of computer engineering. Analysis and design of computer architecture and organization. Digital signal processing techniques and hardware. Microprocessor operation, control and interfacing. Design with traditional and hardware description language techniques. Implementation with both medium and large scale integrated (M/LSI) chips and programmable logic devices (PLDs).  
**Prerequisites:** EE F341 or EE F343.  
Lecture + Lab + Other: 3 + 3 + 0

EE F444  Embedded Systems Design  
(Q, W)  
4 Credits  
Offered Spring  
Issues surrounding the design and implementation of microcontroller-based embedded systems. Topics include hardware architecture and glue logic, embedded programs design, analysis, and optimization, hardware/firmware partitioning, firmware architecture and design. Includes laboratory exercises using evaluation board and a complete embedded system design project. Emphasis on robust designs, energy efficiency, and proper documentation.  
**Prerequisites:** COJO F131X or COJO F141X; EE F303; EE F334; EE F354; EE F443; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.  
Recommended: CS F301.  
Stacked with EE F645.  
Lecture + Lab + Other: 3 + 3 + 0

EE F451  Digital Signal Processing  
4 Credits  
Offered Fall  
Time, frequency and Z-transformation domain analysis of discrete time systems and signals; discrete Fourier transformation (DFT) and FFT implementations; FIR/IIR filter design and implementation techniques; discrete time random signals and noise analysis; quantization and round off errors; and spectral analysis. Includes applications to medical, speech, electromagnetic and acoustic signal analysis.  
**Prerequisites:** EE F354.  
Stacked with EE F651.  
Lecture + Lab + Other: 3 + 3 + 0

EE F461  Communication Systems  
4 Credits  
Offered Fall  
Theory, design and implementation of communication systems. Measurement of modulation, noise, channel spectrum, satellite link budget and microwave path design.  
**Prerequisites:** EE F354; senior standing.  
Lecture + Lab + Other: 3 + 3 + 0

EE F463  Communication Networks  
3 Credits  
Offered Spring  
**Prerequisites:** EE F354 and Senior standing.  
Lecture + Lab + Other: 3 + 0 + 0

EE F464  Communication Networks Design  
(O, W)  
4 Credits  
Offered Spring  
**Prerequisites:** COJO F131X or COJO F141X; EE F354; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.  
Lecture + Lab + Other: 3 + 3 + 0

EE F471  Automatic Control  
3 Credits  
Offered Spring  
**Prerequisites:** EE F353; MATH F302.  
Lecture + Lab + Other: 3 + 0 + 0

EE F488  Undergraduate Research  
1-3 Credits  
Advanced research topics from outside the usual undergraduate requirements.  
**Prerequisites:** Permission of instructor.  
Recommended: A substantial level of technical/scientific background.  
Lecture + Lab + Other: 0 + 0 + 0

EE F608  Power Electronics Design  
(O, W)  
4 Credits  
Offered Spring  
Analysis and design of power electronic conversion, control and drive systems. Topics will include the theory and application of thyristors, rectifiers, DC-DC converters, inverters, resonant converters, AC and DC switches and regulators, power supplies, DC drives and adjustable-speed drives, including variable-frequency drives. Includes laboratory exercises using power electronic converter boards, PSPICE, and a complete power electronics design project.  
**Prerequisites:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; EE F303; EE F334; EE F354; senior standing.  
Stacked with EE F408.  
Lecture + Lab + Other: 3 + 3 + 0

EE F611  Waves  
3 Credits  
Offered Spring Odd-numbered Years  
Introduction to waves and wave phenomena. Includes electromagnetic, acoustic, seismic, atmospheric and water waves and their mathematical and physical treatment in terms of Hamilton's principle. Discusses propagation, attenuation, reflection, refraction, surface and laminar guiding, dispersion, energy density, power flow, and phase and group velocities. Treatment limited to plane harmonic waves in isotropic media.  
**Prerequisites:** MATH F302 or MATH F421.  
Lecture + Lab + Other: 3 + 0 + 0
EE F634  Microwave Design I
3 Credits
Offered Fall Odd-numbered Years
Analysis, design, fabrication and measurement of passive microwave components and circuits using microstrip construction techniques. Theoretical and computer-aided design of transmission lines, power dividers, hybrids, directional couplers and filters.
Prerequisites: EE F334; EE F412; EE F432.
Lecture + Lab + Other: 2 + 3 + 0

EE F635  Microwave Design II
3 Credits
Offered Spring Even-numbered Years
Analysis and design of solid-state microwave circuits. Amplifier and oscillator circuits are designed and fabricated using microstrip construction techniques and computer-aided design tools.
Prerequisites: EE F634.
Lecture + Lab + Other: 2 + 3 + 0

EE F643  Advanced Architectures for Parallel Computing
3 Credits
Offered Fall Odd-numbered Years
This course covers massively parallel computer architectures and their application for computationally intensive engineering problems. Fundamental hardware concepts and issues in designing such systems are introduced. Compute Unified Device Architecture (CUDA), developed by NVIDIA for the compute engines in their graphic processing units (GPUs), will be used as an example and a practical platform for student assignments. Through assignments and a project students will learn simulation, computational engineering, convolution, correlation, filtering, and similar problems of particular interest to engineering students.
Prerequisites: CS F201 or ES F201; EE F443 graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

EE F645  Embedded Systems Design
4 Credits
Offered Spring
Issues surrounding the design and implementation of microcontroller-based embedded systems. Topics include hardware architecture and glue logic, embedded programs design, analysis, and optimization, hardware/firmware partitioning, firmware architecture and design. Includes laboratory exercises using evaluation board and a complete embedded system design project. Emphasis on robust designs, energy efficiency, and proper documentation.
Prerequisites: Graduate standing.
Stacked with EE F444.
Lecture + Lab + Other: 3 + 3 + 0

EE F646  Wireless Sensor Networks
3 Credits
Offered Fall Even-numbered Years
The course will survey the area of networked sensors, with a special focus on low-power wireless sensor networks. Topics covered will include communication standards and protocols for sensor networks, embedded operating systems, applications, collaborative processing, data fusion, and system architecture. Students will undertake a theoretical or practical research project.
Prerequisites: CS F201 or ES F201; EE F343 or EE F341; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

EE F647  Data Compression
3 Credits
Offered Spring Even-numbered Years
Study of algorithms and techniques that reduce information storage and transmission requirements. Both lossless and lossy techniques will be studied including: Huffman coding, arithmetic coding, image compression, and transform techniques.
Prerequisites: ES F201 or CS F201.
Lecture + Lab + Other: 3 + 0 + 0

EE F648  VLSI Design
3 Credits
Offered Spring Odd-numbered Years
Study of methods to integrate millions of transistors on a single chip and create optimized design. Topics include CMOS logic design, power and timing issues. VLSI architectures, and full custom layout. Students will use CAD tools to implement a VLSI design.
Prerequisite: EE F343.
Lecture + Lab + Other: 3 + 0 + 0

EE F651  Digital Signal Processing
4 Credits
Offered Fall
Time, frequency and Z-transformation domain analysis of discrete time systems and signals; discrete Fourier transformation (DFT) and FFT implementations; FIR/IIR filter design and implementation techniques; discrete time random signals and noise analysis; quantization and round off errors; and spectral analysis. Includes applications to medical, speech, electromagnetic and acoustic signal analysis.
Prerequisites: Graduate standing.
Stacked with EE F451.
Lecture + Lab + Other: 3 + 3 + 0

EE F655  Adaptive Filters
3 Credits
Offered Spring Even-numbered Years
Study to self-designing filters which recursively update depending on the statistics of the input data for optimum performance. Topics will include foundational material in probability of stochastic processes, spectral analysis, linear optimum filtering, Wiener-Hopf filters, Yule-Walker equations, forward and backward linear predictors, method of steepest descent, least squares techniques, and auto-regressive filters.
Prerequisites: EE F451.
Lecture + Lab + Other: 3 + 0 + 0

EE F656  Aerospace Systems Engineering
3 Credits
Offered Fall Odd-numbered Years
A multidisciplinary team of students will perform a preliminary design study of a major aerospace system. Design considerations will include requirements for project management, aerospace vehicle design, power, attitude control, thermal control, communications, computer control and data handling. The students will present their final design in a written report and a public seminar.
Prerequisites: Graduate standing.
Cross-listed with ME F656.
Lecture + Lab + Other: 3 + 0 + 0
EE F662  Digital Communication Theory  
3 Credits  
Offered Fall Even-numbered Years  
Probability in communication systems, power spectral density, baseband formatting, bandpass modulation and demodulation, link analysis, coding and channel models. Sections of this course offered in Anchorage have an additional fee.  
Prerequisites: EE F461.  
Lecture + Lab + Other: 3 + 0 + 0

EE F671  Digital Control Systems  
3 Credits  
Offered As Demand Warrants  
Study of digital control theory. Topics will include signal conversion, Z-transforms, state variable techniques, stability, time and frequency domain analysis and system design.  
Prerequisites: EE F471.  
Lecture + Lab + Other: 3 + 0 + 0

EE F698  Non-Thesis Research/Project  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

EE F699  Thesis  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 0

**Electronics Technology (ELT)**

ELT F101  Basic Electronics: DC Physics  
4 Credits  
Offered As Demand Warrants  
Basic terms and units. Use of test equipment, hand tools and techniques of soldering. Ohm’s law, fundamentals of magnetism, DC circuit analysis, inductance and capacitance in DC circuits.  
Prerequisites: Placement in DEVM F054 or TTCH F131.  
Lecture + Lab + Other: 4 + 0 + 0

ELT F102  Basic Electronics: AC Physics  
4 Credits  
Offered As Demand Warrants  
Principles of alternating current, vectors, phase relationships, inductive and capacitive reactance and impedance. AC circuit analysis, series and parallel resonant circuits, transformers and network analysis.  
Prerequisites: ELT F101, DEVM F105 (may be taken concurrently).  
Lecture + Lab + Other: 4 + 0 + 0

ELT F108  Arithmetic/Dc Circuits  
3 Credits  
Lecture + Lab + Other: 3 + 0 + 0

ELT F109  Arithmetic/AC Circuits  
3 Credits  
Lecture + Lab + Other: 3 + 0 + 0

ELT F111  FCC Amateur and General Radiotelephone Operator Licensing  
1-3 Credits  
Offered As Demand Warrants  
An introduction to the study of radio frequency transmission and receiving will be taught. Basic AC electronics in the radio frequency ranges will be studied. Some of the circuits studied are oscillators, modulators, mixers, amplifiers and filters. The classes will include a hands-on demonstration as part of the lecture. Completion of the class will give the student the instruction necessary to complete an Amateur Radio License test and a background for the General Radiotelephone Operator commercial test (GROL).  
Lecture + Lab + Other: 1-3 + 0 + 0

ELT F122  Intro/Electronic Devices  
3 Credits  
Lecture + Lab + Other: 3 + 0 + 0

ELT F123  Electronic Circuit Fund  
3 Credits  
Lecture + Lab + Other: 3 + 0 + 0

ELT F171  National Electric Code Study  
3 Credits  
Offered As Demand Warrants  
Systematic study of the National Electric Code and rules governing minimum requirements for installation of electrical services, feeders and branch circuits, and requirements for construction and installation of electrical equipment.  
Prerequisites: ELT F102.  
Recommended: DEVM F105.  
Lecture + Lab + Other: 3 + 0 + 0

ELT F246  Electronic Industrial Instrumentation  
3 Credits  
Offered As Demand Warrants  
Methods of analog electronic signal transmission. Discussion of the details of several pieces of equipment in-depth, providing practice in establishing correct interconnections. Basic concepts used in troubleshooting this type of equipment are also introduced.  
Prerequisites: ELT F102.  
Recommended: DEVM F105.  
Lecture + Lab + Other: 3 + 0 + 0

**Emergency Medical Services (EMS)**

EMS F121  Emergency Med Tech II  
2 Credits  
Lecture + Lab + Other: 2 + 0 + 0

EMS F123  Emergency Med Tech III  
3 Credits  
Lecture + Lab + Other: 3 + 0 + 0

EMS F150  Wilderness Emergency Care  
3 Credits  
Offered As Demand Warrants  
Introduction to medicine in a remote setting. Assessment and management of life-threatening and non-threatening injuries, common medical emergencies and a variety of environmental injuries. Academically challenging training includes basic anatomy and physiology, appropriate short-term to multi-day patient care, the incident command system and evacuation and considerations.  
Lecture + Lab + Other: 3 + 0 + 0
EMS F152  Emergency Trauma Training First Responder
3 Credits
Basic emergency care knowledge and skills for the student who will provide the first emergency care. The objective of the first person on the emergency scene is to recognize the needs of the victim and deliver quality care to the patient, minimizing discomfort and preventing further complications.

Lecture + Lab + Other: 2 + 2 + 0

EMS F152P  Emergency Trauma Training First Responder
3 Credits
Basic emergency care knowledge and skills for the student who will provide the first emergency care. The objective of the first person on the emergency scene is to recognize the needs of the victim and deliver quality care to the patient, minimizing discomfort and preventing further complications.

Lecture + Lab + Other: 2 + 2 + 0

EMS F154  Emergency Trauma Training Refresher
1 Credit
Offered Fall
For individuals who have been previously certified in Emergency Trauma Training (40 hrs.). Certification is valid for two years.

Prerequisites: EMS F152 or ETT Certification which may not be expired more than one calendar year.

Lecture + Lab + Other: 1 + 0 + 0

EMS F154P  Emergency Trauma Training Refresher
1 Credit
For individuals who have been previously certified in Emergency Trauma Training (40 hrs.). Certification is valid for two years.

Prerequisites: EMS F152 or ETT Certification which may not be expired more than one calendar year.

Lecture + Lab + Other: 1 + 0 + 0

EMS F160  Basic Trauma Life Support
1 Credit
Offered As Demand Warrants
Provides the first line of life support to the trauma patient as encountered in situ and to maintain life until the patient is handed off to the next level of medical help.

Lecture + Lab + Other: 1 + 0 + 0

EMS F168  ETT to EMT Bridge Course
3 Credits
Offered As Demand Warrants
Allows certified emergency trauma technician (ETT) to progress to the emergency medical technician in an efficient manner. Credits the ETT with the knowledge and skills learned in primary training.

Prerequisites: Current Emergency Trauma Technician certificate.

Lecture + Lab + Other: 0.5 + 5 + 0

EMS F170  EMT: Emergency Medical Technician I
6 Credits
Offered As Demand Warrants
Basic life support such as splinting, hemorrhage control, oxygen therapy, suction, CPR and use of automated external defibrillators (AEDs). EMT I is the foundation of all emergency medical training. Mastering of EMT I level knowledge and techniques must occur before moving on to advanced levels.

Cross-listed with ARSK F170.

Lecture + Lab + Other: 4 + 4 + 0

EMS F170P  EMT: Emergency Medical Technician I
6 Credits
Basic life support such as splinting, hemorrhage control, oxygen therapy, suction, CPR and use of automated external defibrillators (AEDs). EMT I is the foundation of all emergency medical training. Mastering of EMT I level knowledge and techniques must occur before moving on to advanced levels.

Cross-listed with ARSK F170.

Lecture + Lab + Other: 4 + 4 + 0

EMS F172  EMT: Emergency Medical Technician I Refresher
1 Credit
Offered Fall
Review of basic skills and emergency medical procedures at the Basic EMT I level. Covers emergency medical care procedural changes, newly developed equipment and its use, changes in state licensure or other medical-legal requirements. Also Offered Pass/Fail as EMS F172P.

Prerequisites: EMT I certification.

Lecture + Lab + Other: 0.5 + 1 + 0

EMS F173  EMT Internship
6 Credits
Offered Spring
Synthesize cognitive and psychomotor skills from the EMT I course and observe skills performed by Advanced Care Providers. Designed for individuals planning to participate in the CTC paramedic program in the fall semester. Interns will perform all aspects of emergency care for an Alaska certified EMT I under the guidance of an Advanced Care Provider.

Prerequisites: EMS F170; concurrent EMT I certification.

Lecture + Lab + Other: 0 + 16 + 0

EMS F176  Aeromedical Evacuations in Alaska (a)
1 Credit
Offered Fall
History of Alaska aeromedical transport; physiological aspects of pressure and atmosphere; physical effects of flight on the patient and escort; aircraft and equipment considerations; legal aspects of air transport; effects of aeromedical transport on specific medical situations.

Prerequisites: EMT I certification.

Lecture + Lab + Other: 1 + 0 + 0

EMS F181  Clinical Rotation I
4 Credits
Offered Fall, As Demand Warrants
Perform paramedic skills in the hospital setting under the guidance of a clinical preceptor. Rotations include the emergency department, ICU, operating room, respiratory therapy, and mental health units. Provides an in-depth look at the respiratory, circulatory and nervous systems. Includes interpretation of cardiac rhythms and advanced cardiac life support. Note: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.

Prerequisites: Permission of program coordinator.

Lecture + Lab + Other: 0 + 4 + 4
EMS F183  Clinical Rotation II
4 Credits
Offered Spring, As Demand Warrants
Perform paramedic skills in the hospital setting under the guidance of a clinical preceptor. Rotations include the emergency department, ICU, OR, labor and delivery, pediatrics and geriatrics. Note: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.
Prerequisites: EMS F181.
Lecture + Lab + Other: 0 + 4 + 4

EMS F251  Basic Life Support Instructor
1 Credit
Offered As Demand Warrants
The American Heart Association Basic Life Support instructor’s course provides the knowledge and skills necessary to instruct and evaluate potential BLS providers. Balances what information to teach with how to teach BLS. The BLS instructor student will be monitored during the first class she/he teaches by the BLS instructor trainer.
Prerequisites: Basic Life Support certified; permission of program coordinator.
Lecture + Lab + Other: 1 + 0 + 0

EMS F253  Alaska EMT Instructor Orientation (a)
3 Credits
Offered As Demand Warrants
Adult education and learning environment, as well as regulations governing the teaching of EMTs in the state of Alaska. This course is designed to be an intensive learning experience with extensive out-of-class preparation. Proficiency with EMT skills and knowledge prior to entering this training program is expected as there will be no review of EMT skills or knowledge during this class.
Prerequisites: Current EMT I, II, III or MICP certification and three years of experience; evidence of successful completion of state of Alaska practical exam and written exam with a score of 90% within the last 12 months.
Recommended: FIRE F216.
Lecture + Lab + Other: 3 + 0 + 0

EMS F257  Arctic Survival (a)
3 Credits
Offered Spring
Principles, procedures, techniques and equipment necessary to survive extreme Arctic conditions and to assist in safe recovery. Lab required.
Cross-listed with AVTY F231.
Lecture + Lab + Other: 3 + 0 + 0

EMS F261  EMT: Emergency Medical Technician II
3 Credits
Offered Spring
Advancement of EMT I skills and knowledge through advanced techniques in fluid therapy and advance airway management. Includes use of specific drug therapy.
Prerequisites: EMT I certification and proof of 10 patient contacts as an EMT I.
Lecture + Lab + Other: 2 + 2 + 0

EMS F261P  EMT: Emergency Medical Technician II
3 Credits
Advancement of EMT I skills and knowledge through advanced techniques in fluid therapy and advance airway management. Includes use of specific drug therapy.
Prerequisites: EMT I certification and documentation of 10 patient contacts by the first day of class as described in State EMT regulations: 7AAC26.010.
Lecture + Lab + Other: 2 + 2 + 0

EMS F265  Emergency Medical Technician III
2 Credits
Offered Fall
Introduction to basic cardiac anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic lethal arrhythmias, use of monitor, defibrillator and pharmacological management.
Prerequisites: EMT II certification and proof of 10 patient contacts and 10 venipunctures as an EMT II.
Lecture + Lab + Other: 0.5 + 3 + 0

EMS F265P  Emergency Medical Technician III
2 Credits
Introduction to basic cardiac anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic lethal arrhythmias, use of monitor, defibrillator and pharmacological management.
Prerequisites: EMT II certification and proof of 10 patient contacts and venipunctures as an EMT II.
Lecture + Lab + Other: 0.5 + 3 + 0

EMS F267  Advanced Medical Procedures
1 Credit
Offered As Demand Warrants
State requirements for recertification at the EMT II or III levels. Reviews advanced medical skills and emergency medical procedures at the EMT II and III levels. Emergency medical care procedural changes, newly developed equipment and its use, changes in state certification and other medical-legal requirements. Course may be repeated ten times but not for credit.
Prerequisites: Current EMT II or III certification.
Lecture + Lab + Other: 0.5 + 1 + 0

EMS F270  Advanced Emergency Medical Technician Advanced Emergency Medical Technician
10 Credits
Offered As Demand Warrants
The Advanced Emergency Medical Technician (AEMT) training includes invasive procedures such as IV therapy, the use of advanced airway devices and medication administration. Individuals that complete the course are eligible to take the National Registry AEMT exam. Prerequisites: Current state or national EMT certification; current AHA CPR certification; departmental approval.Offered As Demand Warrants
The Advanced Emergency Medical Technician (AEMT) training includes invasive procedures such as IV therapy, the use of advanced airway devices and medication administration. Individuals that complete the course are eligible to take the National Registry AEMT exam. Prerequisites: Current state or national EMT certification; current AHA CPR certification; departmental approval.
Lecture + Lab + Other: 8 + 6 + 0
Engineering and Science Management (ESM)

EMS F280  Paramedicine I
12 Credits
Offered Fall, As Demand Warrants
Introduction to emergency medical services, the roles and responsibilities of a paramedic and medical/legal/ethical issues. Basic pathophysiology, pharmacology, venous access and advanced airway management techniques. Also includes an in-depth look at the circulatory, respiratory and nervous systems which includes interpretation of cardiac rhythms, pharmacology and advanced cardiac life support. Note: Student must apply for admission into the Paramedic Academy. Applications are reviewed by the Paramedic Advisory board. Note: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.
Prerequisites: EMS F170.
Recommended: HTLH F114 or equivalent.
Lecture + Lab + Other: 8 + 8 + 0

EMS F282  Paramedicine II
12 Credits
Offered Spring, As Demand Warrants
Assessment and management of medical emergencies, geriatrics, pediatrics and traumatic injuries. Includes pediatric advanced life support and basic trauma life support certifications. Note: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.
Prerequisites: EMS F280.
Lecture + Lab + Other: 8 + 8 + 0

EMS F283  Paramedic Internship
12 Credits
Offered Spring
Prehospital field experience under the guidance of a paramedic preceptor on an advanced life support ambulance. Interns perform all aspects of paramedic care. Note: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.
Prerequisites: EMS F183.
Lecture + Lab + Other: 0 + 24 + 0

EMS F287  Paramedic Refresher
3 Credits
Offered As Demand Warrants
Integration of paramedicine knowledge and techniques with evaluation of applied skills. Note: Student must have the strength to be able to move patients, sufficient vision to assess the condition of the patient and the dexterity to perform the skills of a paramedic.
Prerequisites: Current State of Alaska or National Registry paramedic license.
Lecture + Lab + Other: 2 + 2 + 0

Engineering and Science Management (ESM)

ESM F422  Engineering Decisions
3 Credits
Offered Spring
Risk and uncertainty in engineering decisions. Basic applied probability and statistics, data analysis, regression analysis and time series. Practical applications of decision tools: linear programming, inventory analysis, queuing, network models and utility theory. Engineering judgment and uncertainty. Public safety and ethics.
Recommended: Calculus through MATH F302.
Stacked with ESM F622.
Lecture + Lab + Other: 3 + 0 + 0

ESM F450  Economic Analysis and Operations (W)
3 Credits
Fundamentals of engineering economy, project scheduling, estimating, legal principles, professional ethics and human relations. Note: Undergraduate engineering students who are taking graduate ESM courses as technical electives should have completed or be concurrently enrolled in ESM F450. Note: Not offered for credit toward the M.S. degree in Engineering Management or Science Management.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ES F201 or CS F201; senior standing in engineering.
Lecture + Lab + Other: 3 + 0 + 0

ESM F492P  Engineering Mgt Seminar
1 Credit
Lecture + Lab + Other: 0 + 0 + 0

ESM F601  Managing and Leading Engineering Organizations
3 Credits
Offered Fall Even-numbered Years
Leadership knowledge and skills as applied to motivation, direction and communication within engineering and technical organizations, and their relations with other organizations and the public. Leadership training complements management knowledge and activities such as organizational structures, planning, monitoring, directing and controlling. The general tools of management are reviewed including management theory, communications, conflict management and resolution.
Recommended: B.S. degree in engineering or physical science or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESM F605  Engineering Economic Analysis
3 Credits
Offered Spring Even-numbered Years
The economic basis of engineering decisions. Graduate level studies of capital investment analysis techniques, including present worth, annual cash flow and rate of return. Applications to replacement problems, benefits/cost analysis and capital budgeting. Consideration of impacts of depreciation accounting, income taxes and inflation. Risk and uncertainty in economic decisions. Simulation.
Recommended: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0
ESM F608  Legal Principles for Engineering Management
3 Credits
Offered Fall Odd-numbered Years
Those aspects of law specifically related to technical management. Contracts, sales, real property, business organization, labor, patents and insurance.
Recommended: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ESM F609  Project Management
3 Credits
Offered Spring Even-numbered Years
Organizing, planning, scheduling and controlling projects. Use of CPM and PERT; computer applications. Case studies of project management problems and solutions.
Recommended: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ESM F620  Statistics for ESM
3 Credits
Offered As Demand Warrants
Forecasting applications and technique—technological, time series, judgmental and regression; decision trees; Bayesian statistics; utility theory with trade-offs between expected value and risk in decision making; bidding strategies; and data analysis.
Recommended: MATH F253X; STAT F200X.
Lecture + Lab + Other: 3 + 0 + 0

ESM F621  Operations Research
3 Credits
Offered As Demand Warrants
Mathematical techniques for aiding technical managers in decision making. Linear programming, transportation problem, assignment problem, network models, PERT/CPM, inventory models, waiting line models, computer simulation, dynamic programming. Emphasis on use of techniques in actual technical management situations. Computer applications.
Recommended: MATH F253X; STAT F200X.
Lecture + Lab + Other: 3 + 0 + 0

ESM F622  Engineering Decisions
3 Credits
Offered Spring
Risk and uncertainty in engineering decisions. Basic applied probability and statistics, data analysis, regression analysis and time series. Practical applications of decision tools: linear programming, inventory analysis, queuing, network models, utility theory. Engineering judgment and uncertainty. Public safety and ethics. A class project and paper are required.
Recommended: Calculus through MATH F302.
Lecture + Lab + Other: 3 + 0 + 0

ESM F684  Engineering Management Project
3 Credits
Comprehensive study of an actual engineering management problem resulting in reports and presentations which include recommendations for action.
Prerequisites: Graduate standing in Engineering Science Management.
Lecture + Lab + Other: 3 + 0 + 0

ESM F698  Non-Thesis Research/Project
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

ESM F699  Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

Engineering Science (ES)

ES F101  Introduction to Engineering
3 Credits
Overview of the engineering profession and introduction to the fields of engineering. Basic concepts from engineering, physics and mathematics applied to engineering problem solving. Basic skills required of engineers, including an introduction to engineering communications: word processing, descriptive geometry, orthographic and isometric drawings, graphs, computer graphics and use of spreadsheets.
Prerequisites: MATH F151X, or MATH F152X, or MATH F156X, or placement into MATH F251X.
Lecture + Lab + Other: 2 + 2 + 0

ES F166  Electric Car Conversion
2 Credits
Offered Summer
An introduction to the principles of electrical vehicle propulsion systems. Fundamentals of electrical motors, electrical motor controls, electrical energy storage systems and automotive power-train design. Students will conduct practical design projects culminating with a complete electric car conversion. Relevant codes and standards will be emphasized.
Lecture + Lab + Other: 1 + 3 + 0

ES F201  Computer Techniques
3 Credits
Basic computer programming, in C/C++, with applications from all fields of engineering. Introduction to MATLAB.
Prerequisites: MATH F151X; MATH F152X; or MATH F156X, or enrollment in MATH F251X.
Lecture + Lab + Other: 2 + 3 + 0

ES F208  Mechanics
4 Credits
Engineering-oriented coverage of statics and dynamics. Vector methods used where appropriate.
Prerequisites: MATH F252X; PHYS F211X (both may be taken concurrently); ES F101, GE F101, MIN F103 or PETE F101.
Lecture + Lab + Other: 3 + 3 + 0

ES F209  Statics
3 Credits
Force systems in two and three dimensions. Composition and resolution of forces and force systems; principles of equilibrium applied to various bodies, simple structures, friction, centroids, moments of inertia. Vector algebra used where appropriate.
Prerequisites: MATH F252X (may be taken concurrently); PHYS F211X (may be taken concurrently); PETE F101 or ES F101.
Lecture + Lab + Other: 3 + 0 + 0
ES F210 Dynamics
3 Credits
Introduces kinematics and kinetics of particles and rigid bodies' motion. Applies principles of work and energy, impulse and momentum to particles and rigid bodies' motion. Applies concept of vector algebra wherever required.
Prerequisites: ES F209; MATH F252X.
Lecture + Lab + Other: 3 + 0 + 0

ES F301 Engineering Analysis
3 Credits
Application of numerical tools, including software, to typical engineering design problems. Selected topics from all fields of engineering.
Prerequisites: Math F302 (may be taken concurrently); ES F201.
Lecture + Lab + Other: 3 + 0 + 0

ES F307 Elements of Electrical Engineering
3 Credits
Elementary circuits and theorems, natural, forced and steady state response, principles of electronics, circuit models and system parameters, elements of measurement and instrumentation, characteristics of DC machines, and AC machines and transformers.
Prerequisites: MATH F252X.
Lecture + Lab + Other: 3 + 0 + 0

ES F331 Mechanics of Materials
3 Credits
Analysis of internal forces in members subjected to axial, torsional and flexural loads, singly and in combination. Stress-strain relationships and material property definitions; shear and moment diagrams, Mohr's Circle. Applications include beams, columns, connections and indeterminate cases.
Prerequisites: ES F208 or ES F209; MATH F252X.
Lecture + Lab + Other: 3 + 0 + 0

ES F341 Fluid Mechanics
4 Credits
Statics and dynamics of fluids; energy and momentum principles. Dimensional analysis; flow in open channels, closed conduits and around submerged bodies.
Prerequisites: ES F208 or ES F210; MATH F252X.
Lecture + Lab + Other: 3 + 3 + 0

ES F346 Introduction to Thermodynamics
3 Credits
Offered Every Semester
Fundamental principles and elementary applications of thermodynamics, including the first and second laws of thermodynamics, and thermodynamic systems, properties, processes and cycles.
Prerequisites: MATH F252X; PHYS F211X.
Lecture + Lab + Other: 3 + 0 + 0

English (ENGL)

ENGL F104 Institute on Language, Thought and Culture
3 Credits
Offered As Demand Warrants
Development of critical thinking, writing, and reading skills using the Bard College model. The intensive institute establishes and nurtures learning communities which support bold thinking, risk-taking, collaboration and independence. Offered only at the Kuskokwim Campus.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F200X World Literature (h)
3 Credits
Introduction to critical reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, story telling and drama. Students will gain an understanding of cultural differences and universals in texts from American, American minority, Western European and non-Western sources. Specific content to be announced at time of registration. Course may be repeated for credit when content varies.
Prerequisites: WRTG F111X, placement in WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Cross-listed with FL F200X.
Attributes: UAF Core World Literatures, UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

ENGL F217X Introduction to the Study of Film (h)
3 Credits
Offered Spring
An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects.
Prerequisites: WRTG F111X.
Cross-listed with FLPA F217X; COJO F217X.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 2 + 2 + 0

ENGL F218 Themes in Literature (h)
3 Credits
Offered As Demand Warrants
Exploration of literary themes in various genres of literature, including fiction, poetry and drama. Such themes as "Women in Literature," "Literature of the North," and "Detective Stories in Literature and Film" may be offered. Specific theme is announced at registration. Course may be repeated for credit when content varies.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F230 English Language Proficiency
3 Credits
Offered As Demand Warrants
Intensive listening, speaking, reading and writing in English. Especially recommended for all students for whom English is a foreign language. This course does not meet general degree requirements in written communications and is not classified as a humanities. Course may be repeated once for credit. Note: Open only to students for whom English is a foreign language.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F231 English Language Proficiency
3 Credits
Offered As Demand Warrants
Intensive listening, speaking, reading and writing in English. Especially recommended for all students for whom English is a foreign language. This course does not meet general degree requirements in written communications and is not classified as a humanities. Course may be repeated once for credit. Note: Open only to students for whom English is a foreign language.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F270X  Introduction to Creative Writing (h) 3 Credits
Forms and techniques of fiction, poetry and creative nonfiction for beginning students; discussion of students’ work in class and in individual conferences. Close study of the techniques of established writers.
Prerequisites: WRTG F111X.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

ENGL F280  Introduction to Colonial and Postcolonial Literature (h) 3 Credits
Offered As Demand Warrants
Includes readings from the literature of formerly colonized nations. Texts may be chosen from African, Asian, American and Pacific Rim cultures. Although the colonial and postcolonial periods will be central to our investigations, pre-colonial and ancient cultures may also be considered for the purpose of establishing cultural perspectives. May be repeated twice for credit.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Recommended: ENGL F200X.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F290  Summer Reading Program (Honors) (h) 2 Credits
Selected readings in a variety of disciplines. Group discussions and written responses to the readings follow in the fall. Students keep a summer journal. May be repeated for credit. As Demand Warrants
Prerequisites: WRTG F111X; enrollment in the Honors Program.
Lecture + Lab + Other: 2 + 0 + 0

ENGL F301  Continental Literature in Translation: The Ancient World (h) 3 Credits
Offered Fall Even-numbered Years
Readings from ancient Mesopotamian, Greek and Roman texts: the classical background out of which western literary tradition has risen.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F302  Continental Literature in Translation: Medieval and Renaissance (h) 3 Credits
Offered Fall Odd-numbered Years
Readings from the works of such writers as Dante, Macchiavelli, Petrarch, Boccaccio, Rabelais, Margherite de Navarre, Calderon della Barca and Cervantes.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F306  Survey of American Literature: Beginnings to the Civil War (h) 3 Credits
Offered Fall
Comprehensive study of American thought as reflected in the works of early explorers, Calvinists, Rationalists and Transcendentalists.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F307  Survey of American Literature: Civil War to the Present (h) 3 Credits
Offered Spring
Comprehensive study of American thought as reflected in the writers of Realism, Naturalism, Modernism, and Post-modernism.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F308  Survey of British Literature: Beowulf to the Romantic Period (h) 3 Credits
Offered Fall
Survey of writers and works in Old and Middle English, including Chaucer, through Elizabethan period (Shakespeare), Restoration, and Neoclassic period of the 18th century.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F309  Survey of British Literature: Romantic Period to the Present (h) 3 Credits
Offered Spring
Survey of writers and works from the early Romantic period (Blake and Burns), through the Victorian period, James Joyce, and stream-of-consciousness, to the present.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F310  Literary Criticism (h) 3 Credits
Offered Spring
History and principles of literary criticism, from earliest days to present.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F314  Technical Writing (O/2, W, h) 3 Credits
Writing business letters (letters of inquiry, complaint, evaluation, and job application with resume), preparing tables, graphs, process descriptions, technical instructions, abstracts, grant proposals, and technical reports (progress, laboratory, survey, incident, inspection, feasibility and research). Course does not fulfill the second half of the requirement in written communication.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F317  Traditional English Grammar (h) 3 Credits
Offered Fall
Identification and usage of the more common types of phrase and sentence structures.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F318  Modern English Grammar  (h)  
3 Credits  
Offered Spring  
Structure of current English as seen through traditional and contemporary grammatical theories.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F333  Women's Literature  (h)  
3 Credits  
Offered Fall Odd-numbered Years  
Reading, discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period or genre, but readings will include both primary and secondary texts.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Cross-listed with WGS F333.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F340  Contemporary Native American Literature  (h, a)  
3 Credits  
Offered Fall Odd-numbered Years  
Contemporary Native American writing in English, including novels, short stories, poetry and plays. Examples of Native American film when related to a written work. Works discussed in relation to cultural contexts and interpretations.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Cross-listed with ANS F340.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F341  Contemporary Alaska Native Literature  (h, a)  
3 Credits  
Offered As Demand Warrants  
Contemporary Alaska Native literature including novels, short stories, poetry and plays. Bibliography, genres and viewpoints, structural and thematic features of stories. May concentrate on specific regional areas of the state.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F347  Voices of Native American Peoples  (h, a)  
3 Credits  
Offered Spring Even-numbered Years  
Exploration of the forms by which Native American peoples have narrated their life experiences. Includes oral narratives, written autobiographies, memoirs and speeches, and an introduction to the social, historical and cultural content surrounding these texts. Readings selected from all of North America with an emphasis on Alaska Natives.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.  
Cross-listed with ANS F347.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F349  Narrative Art of Alaska Native Peoples (in English translation)  (h, a)  
3 Credits  
Offered Fall Even-numbered Years  
Traditional and historical tales by Aleut, Eskimo, Athabascan Eyak, Tlingit, Haida and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Cross-listed with ANS F349.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F349  Narrative Art of Alaska Native Peoples (in English translation)  (h, a)  
3 Credits  
Offered Fall Even-numbered Years  
Traditional and historical tales by Aleut, Eskimo, Athabascan Eyak, Tlingit, Haida and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Cross-listed with ANS F349.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F360  Multiethnic Literatures of the United States  (h)  
3 Credits  
Offered Fall Odd-numbered Years  
Ethnic American writings. Includes Native American, Asian American, Hispanic American, African American, Jewish American, immigrant and other traditions of literary expression. Ethnic writings will be compared to mainstream American literature.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F375  Intermediate Creative Writing: Fiction  (W, h)  
3 Credits  
Forms and techniques of fiction. Students' work will be read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F270X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F376  Intermediate Creative Writing: Poetry  (W, h)  
3 Credits  
Forms and techniques of poetry. Students' work will be read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F270X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F377  Intermediate Creative Writing: Nonfiction  (W, h)  
3 Credits  
Forms and techniques of literary nonfiction. Students' work will be read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F270X; sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0
ENGL F380  Topics in Colonial and Postcolonial Literature (h) 3 Credits
Offered As Demand Warrants
Focus on a particular topic in selected colonial and postcolonial literary texts. Readings will be chosen for their relevance to a particular theme, to be announced by the instructor. Topic will vary from one semester to another, but the goal will be to explore the significance and importance of the chosen topic as it manifests itself in the literature. Readings and discussions will foster in-depth understanding of texts dealing with the chosen topic. Possible topics might include: war and peace, economic imperatives, environmental perspectives, sickness and health, and gender issues. May be repeated three times for credit.
Prerequisites: ENGL F200X.
Recommended: ENGL F280.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F400  Capstone Portfolio
0 Credit
This course consists of mandatory attendance at a portfolio-creation workshop and submission of a capstone portfolio. The workshop is designed to support the student's development of the portfolio and shall be taken during the semester in which the student intends to graduate. The portfolio will consist of materials from the student's coursework within the English Major; see the English Department website for more information and deadlines. Mandatory attendance at a portfolio-creation workshop and satisfactory completion and submission of a capstone portfolio.
Prerequisites: Senior standing.
Lecture + Lab + Other: 0 + 0 + 0

ENGL F410  Studies in American Literature to 1900 (O/2, W, h) 3 Credits
Offered Every Third Fall
Intensive study of variable topics in American literature to 1900. May focus on themes such as race or war in literature; a specific period such as novels of the 1850s; particular genres such as horror, Westerns, or travel writing; an important author; or an aspect of contemporary literary or cultural theory. Intensive readings and research in contemporary literary theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F415  Studies in 17th- and 18th-Century British Literature (O/2, W, h) 3 Credits
Offered Every Third Fall
Intensive study of variable topics in 17th- and 18th-century British literature. May focus on themes or subjects such as gender or war in literature; a specific period such as literature of the 1660s; particular genres such as the gothic, satire, the sentimental novel; an important author; or an aspect of contemporary literary or cultural theory. Intensive readings and research in contemporary literary theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F420  Studies in Medieval and 16th-Century British Literature (O/2, W, h) 3 Credits
Offered Every Third Fall
Intensive study of variable topics in medieval and 16th-century British literature. Themes may include Arthurian literature, fin'amor (courtly love), orality and literacy, and the Otherworld and other imaginary lands. Intensive readings and research in both primary texts and contemporary literary theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F422  Shakespeare: History Plays and Tragedies (O/2, W, h) 3 Credits
Offered Fall
Major chronicle plays and tragedies, including significant criticism.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Recommended: ENGL F308 desirable but not required.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F425  Shakespeare: Comedies and Nondramatic Poetry (O/2, W, h) 3 Credits
Offered Spring
Major comedies and non-dramatic poems, including significant criticism.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.
Recommended: ENGL F308 desirable but not required.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F427  Topics in Film Studies (h) 3 Credits
Offered Spring
Intensive study of variable topics in film studies. May focus on themes such as race or war in film; a specific period such as films of the 1940s; particular genres such as horror, film noir, or the musical, an important director, or an aspect of contemporary film theory. Intensive readings and research in contemporary film theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated two times for credit when content varies.
Prerequisites: ENGL F217X or FLPA F217X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Cross-listed with FLPA F427.
Lecture + Lab + Other: 2 + 2 + 0
ENGL F433  Women, Gender and Sexuality in Language, Literature and Culture  (O/2, W, h)  3 Credits
Offered Fall Even-numbered Years
Intensive study of variable topics in women, gender and/or sexuality studies with a focus on humanities fields such as literature, writing, rhetoric, theory, film and cultural studies. Topics will be placed in dialogue with current debates within women, gender and/or sexuality studies. Specific content to be announced at the time of registration. Course may be repeated for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Cross-listed with WGS F433.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F435  Authors  (h)  3 Credits
Offered Fall
Intensive, in-depth study of the works of an individual author. Readings from the author's oeuvre along with significant criticism and commentary on the author's works. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F440  Studies in 20th- and 21st-Century British Literature  (O/2, W, h)  3 Credits
Offered Every Third Spring
Intensive study of variable topics in 20th- and 21st-Century British literature. Focus may be on themes such as Modernism or Postmodernism, Urban Experience, Alienation, Multiculturalism, Race or War; a specific period such as literature of the 1960s; particular genres such as the novel or poetry, an important author; or an aspect of contemporary literary theory. Intensive readings and research in contemporary literary theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F449  Northern and Environmental Literature  (h, a)  3 Credits
Intensive study of specific aspects of Alaska and circumpolar writing, ecocritical theory and the literature of environmental studies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Cross-listed with ACNS F449.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F450  Studies in 19th-Century British Literature  (O/2, W, h)  3 Credits
Offered Every Third Fall
Intensive study of variable topics in 19th-century British literature. May take up a variety of concerns by focusing on literature associated with one or more specific 19th-century literary movements (e.g., Romanticism, Realism); historical developments (e.g., the Victorian Age, British colonialism); groups of related writers (e.g., the Lake Poets); social issues (e.g., industrialization, social reform, religion, gender); or an aspect of 19th-century literary theory. Intensive readings and research in contemporary literary theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F455  Studies in 20th- and 21st-Century American Literature  (O/2, W, h)  3 Credits
Offered Every Third Spring
Intensive study of variable topics in American literature. May focus on themes such as Modernism or Postmodernism, Urban Experience, Alienation, Multiculturalism, Race or War; a specific period such as literature of the 1960s; particular genres such as the novel or poetry, an important author; or an aspect of contemporary literary theory. Intensive readings and research in contemporary literary theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F460  Studies in Comparative/World Literature  (O/2, W, h)  3 Credits
Offered Every Third Fall
Intensive study of variable topics in Comparative/World Literature studies. May focus on themes such as gender and race in world literature; a specific period, such as World Literature after 1945; a particular region, such as Africa; an important author; or an aspect of contemporary literary theory and criticism. Intensive readings and research in contemporary literary theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F462  Applied English Linguistics  (h)  3 Credits
Offered Spring Even-numbered Years
Topic(s) for each offering of the course are announced. Examples include teaching English as a second language, dialects and education, dictionaries, stylistics, and composition.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F465  Genre  (h)  3 Credits
Offered Spring
Intensive study of genre focusing on variable subjects such as epic, romance, science fiction, horror narratives, detective narratives, utopian fiction, and roman noir. Intensive readings and research in both primary texts and genre theory will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F470  Topics in Creative Writing  (W, h)  3 Credits
Practice and guidance in writing fiction, poetry, drama or essays. Students' work read and discussed in class and in conference with the instructor. Close study of the techniques of established writers.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F375, ENGL F376, or ENGL F377; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F471  Undergraduate Writers' Workshop  (W, h)  
3 Credits 
Offered Spring 
Discussion of craft and techniques and student work. For advanced students who prepare a manuscript as a final project. May be repeated one time for credit. 
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F375, ENGL F376 or ENGL F377; sophomore standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F472  History of the English Language  (h)  
3 Credits 
Offered Spring Odd-numbered Years 
Origin and development of the English language from prehistoric times to the present. 
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing. 
Recommended: ENGL F318 or a linguistics course is desirable, but not required. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F482  Topics in Language and Literature  (h)  
3 Credits 
Offered Every Fall and Spring 
Intensive study of variable topics in language and literature. May focus on themes, such as race, war, or the natural world; an aspect of language and linguistics; or an aspect of contemporary literary theory. Intensive readings and research in contemporary theory will foster in-depth understanding of chosen topic. Course may be repeated once for credit when content varies. 
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F485  Teaching Composition in the Schools  
3 Credits 
Offered Spring Even-numbered Years 
Theoretical background and workshop experience for teaching composition in middle and high schools with current pedagogy on teaching of writing stressed. Variety of teaching methods demonstrated, practiced and discussed. 
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F488  Dramatic Writing  (W, h)  
3 Credits 
Offered Fall Odd-numbered Years 
Introduction to the craft of dramatic writing for theater and film, with an emphasis on dramatic storytelling. Course will focus on giving students a practical understanding of the uses of story structure, setting, character, plot and dialog, and how these elements work together to create compelling drama. 
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing. 
Cross-listed with FLPA F488. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F603  Studies in British Literature: Old and Middle English  
3 Credits 
Offered Fall Odd-numbered Years 
Variable subject matter in significant topics in Anglo-Saxon and Middle English literature. Course may be repeated once for credit when content varies. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F604  Studies in British Literature: Renaissance and 17th-Century  
3 Credits 
Offered Fall Even-numbered Years 
Variable subject matter in significant topics in 16th- and 17th-century British literature. Course may be repeated once for credit when content varies. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F606  Studies in British Literature: Restoration and 18th Century  
3 Credits 
Offered Fall Odd-numbered Years 
Variable subject matter in significant topics of the Restoration period and the 18th century. Course may be repeated once for credit when content varies. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F607  Studies in British Literature: 19th Century  
3 Credits 
Offered Fall Even-numbered Years 
Variable subject matter in significant topics in British literature of the Romantic and Victorian periods. Course may be repeated once for credit when content varies. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F608  Studies in British Literature After 1900  
3 Credits 
Offered Spring Odd-numbered Years 
Variable subject matter in significant topics in modern British literature. Course may be repeated once for credit when content varies. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F609  Studies in American Literature to 1865  
3 Credits 
Offered Fall Odd-numbered Years 
Variable subject matter in significant topics of the colonial, national, and romantic periods of American literature. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0 
ENGL F611  Studies in American Literature from 1865-1918  
3 Credits 
Offered Spring Even-numbered Years 
Variable subject matter in significant topics in American literature of the late 19th and early 20th centuries. Course may be repeated once for credit when content varies. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0
ENGL F612  Studies in American Literature after 1918
3 Credits
Offered Spring Even-numbered Years
Variable subject matter in American Literature of the 20th-century. Course may be repeated once for credit when content varies.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F614  Studies in Comparative Literature
3 Credits
Offered Spring Odd-numbered Years
Advanced study in literature on a transnational basis with varying emphases, including literature of particular locales, modes or themes. Course may be repeated once for credit when content varies.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F615  Contemporary Literature
3 Credits
Offered Spring Even-numbered Years
Variable subject matter in significant topics in post-World War II literature. Course may be repeated once for credit when content varies.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F620  Images of the North (a)
3 Credits
Offered Spring Even-numbered Years
Interdisciplinary approaches to the variety of images created about and by the people and environment of the circumpolar North. The course will analyze conceptualizations of the North as expressed in a number of media such as film, art, literature, travel journals and oral tradition employing methodologies from many disciplines. Course may be repeated once for credit when content varies.
Prerequisites: Graduate standing.
Cross-listed with ACNS F620.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F661  Mentored Teaching in English
1 Credit
Offered Fall and Spring
Mentored teaching provides consistent contact on course-related issues between teaching assistants and mentoring faculty. F.A. in creative writing program, or M.F.A./M.A. combined degree program, and a teaching assistantship award. Note: Teaching assistants are required to be enrolled in a mentored teaching section while teaching. May be repeated up to six times, for one credit per semester.
Prerequisites: Acceptance into the M.A., M.
Lecture + Lab + Other: 1 + 0 + 2

ENGL F671  Writers’ Workshop
3 Credits
Offered Fall and Spring
The writing of verse, fiction, drama or nonfiction prose in accordance with the individual student’s needs and the instructor’s specialization. Depending on available staff, the workshop may be limited during any semester to work in a particular genre.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F681  Forms of Poetry
3 Credits
Offered Every Third Semester
Intensive study of the forms and techniques of poetry writing. Includes readings and poetry writing exercises.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F682  Forms of Fiction
3 Credits
Offered Every Third Semester
Advanced study in narrative technique through analysis of selected fiction and the students’ own writing. Variable content in terms of the writers to be studied and the kinds of narrative writing to be assigned.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F684  Forms of Nonfiction Prose
3 Credits
Offered Every Third Semester
Intensive study of the forms and techniques of nonfiction. Includes readings and writing exercises.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F685  Teaching College Composition
3 Credits
Offered Fall
An investigation into current practice and theory with demonstrations and reports on pedagogy. Required of all teaching assistants in English.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F686  Teaching Writing in a Cross-cultural Context
3 Credits
Offered As Demand Warrants
Contemporary methods of teaching writing in middle school and high school classrooms, with special emphasis on cross-cultural issues and pedagogy and on contemporary rhetorical theory. Includes methodologies and theoretical underpinnings of teaching grammar and fiction writing.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F688  Writing for Film and Television
3 Credits
Offered Spring Odd-numbered Years
Advanced training in dramatic writing for film and television, with a focus on cinematic story structure, visual imagery, dialogue, pacing, continuity and manuscript format.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F692  Graduate Seminar
3 Credits
Offered As Demand Warrants
Graduate Seminar Intensive study of selected topics in the discipline.
Lecture + Lab + Other: 0 + 0 + 3

ENGL F699  Thesis
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0
English as a Second Language (ESLG)

ESLG F051    Speaking English as a Second Language
1-3 Credits
Offered As Demand Warrants
Engaging in English conversation. For students who do not speak English as their first language, but who can understand and follow simple instructions in English. The emphasis is on large quantities of comprehensible English, and building student confidence in understanding and speaking it. May be repeated up to nine credits.
Lecture + Lab + Other: 1-3 + 0 + 0

ESLG F061    Reading English as a Second Language
1-3 Credits
Offered As Demand Warrants
Language experience approach and other methods are used to increase students' abilities and to build their confidence in reading English as it is encountered everyday. For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English. May be repeated up to nine credits.
Lecture + Lab + Other: 1-3 + 0 + 0

ESLG F071    Writing English as a Second Language
1-3 Credits
Offered As Demand Warrants
Developing skills at writing simple English compositions. For students whose first language is not English. The emphasis is on writing large quantities of English which is understandable to native English speakers, and on building students' confidence in communicating through written English. May be repeated up to nine credits.
Lecture + Lab + Other: 1-3 + 0 + 0

ESLG F121    Intermediate Academic Listening and Speaking I
4 Credits
Offered Fall
This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.
Prerequisites: A minimum score of 50 on the TOEFL Internet-based test (iBT).
Lecture + Lab + Other: 4 + 0 + 0

ESLG F131    Intermediate Academic Listening and Speaking II
4 Credits
Offered Spring
This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.
Prerequisites: A minimum score of 50 on the TOEFL Internet-based test (iBT).
Lecture + Lab + Other: 4 + 0 + 0

ESLG F141    Advanced Academic Listening and Speaking I
4 Credits
Offered Fall
This course provides listening, note taking, and speaking skills development for the American university context. By the end of the course, students will be better able to understand and take notes on lectures covering a variety of academic topics, take an active role in classroom discussions, and give formal presentations.
Prerequisites: A minimum score of 60 on the TOEFL Internet-based test (iBT).
Lecture + Lab + Other: 4 + 0 + 0

Environmental Engineering (ENVE)

ENVE F446    Biological Unit Processes
3 Credits
Offered Spring Even-numbered Years
Theoretical and applied aspects of biological wastewater treatment, including waste-activated sludge processes, trickling filters, lagoons, sludge digestion and processing, nutrient removal, biology of polluted waters, state and federal regulations.
Prerequisites: MATH F302.
Recommended: CE F341.
ESLG F051
Stacked with ENVE F646.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F458    Energy and the Environment
3 Credits
Offered Fall Odd-numbered Years
Overview of basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality.
Prerequisites: CHEM F106X; ES F346; MATH F252X; PHYS F211X.
Cross-listed with ME F458.
ESLG F051
Stacked with ENVE F658; ME F658.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F641    Aquatic Chemistry
3 Credits
Offered Fall Even-numbered Years
Chemistry of aquatic systems, including the development of equilibrium and kinetic models to understanding the speciation, transformation and partitioning of inorganic chemical species in natural and engineered water systems. Emphasis is on the study of acid-base chemistry, complexation, precipitation-dissolution and reduction-oxidation reactions.
Prerequisites: Graduate standing.
Cross-listed with CHEM F605.
ESLG F051
Lecture + Lab + Other: 3 + 0 + 0

ENVE F642    Contaminant Hydrology
3 Credits
Offered Spring Odd-numbered Years
Theoretical and applied aspects of the movement of contaminants through saturated and unsaturated soil.
Recommended: CE F663 or equivalent; graduate standing; or permission of instructor.
ESLG F051
Lecture + Lab + Other: 3 + 0 + 0
ENVE F643  Air Pollution Management
3 Credits
Offered Spring Odd-numbered Years
Air pollution topics including the quantity and quality of atmospheric emissions and their effects on the human environment. Identification and location of sources, measurement of quality and conformance with standards. Legal considerations of Clean Air Act and Amendments and local regulations. Evaluation of stationary and moving sources. Meteorology and modeling requirements. Control mechanisms for gases and particulates.
Prerequisites: CHEM F106X; graduate standing.
Recommended: ENVE F446; CE F443.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F644  Environmental Management and Permitting
3 Credits
Offered Spring Odd-numbered Years
Topics of environmental impact statements, environmental law (local, state and federal), public involvement and environmental quality. Impact from projects of mining, highways, airports, pipelines, industrial development, water, wastewater and solid waste, and others--theoretical considerations and case studies.
Recommended: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F645  Unit Processes: Chemical and Physical
3 Credits
Offered Fall Odd-numbered Years
Theory and design of chemical and physical unit processes for water and wastewater. Sedimentation, coagulation, flocculation, filtration, ion exchange, adsorption/absorption, gas transfer and other special topics. Emphasis on Arctic applications and design.
Recommended: MATH F252X; CHEM F106X or equivalent; graduate standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F646  Biological Unit Processes
3 Credits
Offered Spring Even-numbered Years
Theoretical and applied aspects of biological wastewater treatment, including waste-activated sludge processes, trickling filters, lagoons, sludge digestion and processing, nutrient removal, biology of polluted waters, state and federal regulations.
Prerequisites: Recommended: Graduate standing.
Stacked with ENVE F446.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F647  Biotechnology
3 Credits
Offered Fall Even-numbered Years
Theoretical and applied aspects of bioengineering. Issues studied include microbiology, metabolism, genetics, genetic engineering, enzymes and catalysis, stoichiometry and kinetics, biological reactor design and bioremediation.
Recommended: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F649  Hazardous and Toxic Waste Management
3 Credits
Offered Fall Odd-numbered Years
Course provides in-depth coverage of hazardous and toxic substance management including legal, economic and technical issues. Topics will include characterization of hazardous materials, economics of toxics minimization, hazardous materials use, storage and disposal, basics of municipal solid waste and technical aspects of landfill siting, and selection and design of treatment technologies. Includes case studies of current waste management issues.
Recommended: Bachelor’s degree in science or engineering.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F651  Environmental Risk Assessment
3 Credits
Offered Spring Odd-numbered Years
The characterization of population exposures and the evidence used to identify environmental substances that may pose a human health risk. The theory and methods for estimating risk: hazard identification, dose-response assessment, exposure assessment and risk characterization.
Recommended: Undergraduate degree in engineering or natural science.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F652  Introduction to Toxicology for Engineers and Scientists
3 Credits
Offered Fall Even-numbered Years
Introduction to the science of toxicology for graduate students in fields that use information about hazardous chemicals for input into decisions. Topics include an overview of the effects of chemicals on cells, organs and organ systems, and the toxic effects of classes of chemicals such as pesticides, metals and solvents. Use of data from animal testing and common lists, factors and extrapolation are reviewed.
Recommended: Undergraduate degree in engineering or natural science.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F653  Environmental Measurements Laboratory
1 Credit
Offered Spring
Introduction to analytical methods and measurement techniques used in environmental engineering and environmental quality science. Students will design, conduct and report on a laboratory experiment. Includes sample preparation techniques and analytical methods such as microscopy, atomic adsorption spectroscopy, gas chromatography, liquid chromatography and mass spectrometry.
Recommended: ENVE F641.
Lecture + Lab + Other: 0 + 3 + 0

ENVE F658  Energy and the Environment
3 Credits
Basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality.
Recommended: CHEM F106X; ES F346; MATH F252X; PHYS F211X; graduate standing.
Cross-listed with ME F658.
Stacked with ENVE F458; ME F458.
Lecture + Lab + Other: 3 + 0 + 0

ENVE F698  Non-thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 1-9
ENVE F699  Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 1-12

Environmental Quality Engr (EQE)

EQE F698  Research
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

EQE F699  Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

Environmental Quality Science (EQS)

EQS F699  Thesis
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

Environmental Studies (ENVI)

ENVI F101  Introduction to Environmental Science
3 Credits
Offered Spring
Introduces the interconnected topics that make up environmental science. By exploring Earth's systems, environmental questions are investigated such as how to sustainably use natural resources and the influence of population growth on ecosystems. The course takes a holistic approach to reinforce scientific principles. Key topics covered include ecosystem functions, energy, biodiversity, resource management, landscape alteration and climate change.
Recommended: F100-level biology, chemistry or geology class.
Lecture + Lab + Other: 3 + 0 + 0

ENVI F110  Introduction to Water Quality I: Measurement
1 Credit
Offered Spring
Introduces students to standard water quality methods used and applies them to rural Alaska. Students will become familiar with EPA water quality standards and programs that help preserve water quality in rural communities. Key topics covered include: stream ecology, wastewater management, storm water runoff and data analysis.
Lecture + Lab + Other: 0.5 + 0 + 1.5

ENVI F111  Introduction to Water Quality II: Monitoring and Assessment
1 Credit
Offered As Demand Warrants
Course builds upon methods learned in ENVI F110 with emphasis placed upon data quality objectives, electronic storage of data, and information analysis and reporting. Methods and equipment used for surface water monitoring will be introduced. Students start the process of developing an EPA approved Quality Assurance Project Plan for surface water quality monitoring.
Prerequisites: ENVI F110.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F112  Introduction to Water Quality III: Data Quality Assurance
1 Credit
Offered As Demand Warrants
Students participating in this class will review proper use of surface water quality testing equipment and calibration and operation methods learned in ENVI F110 and ENVI F111. Emphasis in this class will be placed on conducting data quality assurance measures that meet data quality objectives, writing and following a data Quality Assurance Project Plan (QAPP), and data analysis and reporting. Students will continue to develop their own U.S. EPA approved QAPP for surface water quality monitoring.
Prerequisites: ENVI F111.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F115  Rural Solid and Hazardous Waste Management
1 Credit
Offered as Demand Warrants
An overview of solid and hazardous waste management focusing on rural Alaskan communities. Topics covered include: workplace safety, worker roles, recycling facility operation, solid waste composting, hazardous material and waste inventorying, toxicology principles, risk assessment, hazardous site community open dumpsite assessment and the implications of the National Environmental Policy Act.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F116  Rural Alaska Landfill Opertor
1 Credit
Offered as Demand Warrants
Covers best practices in managing rural landfills in compliance with State of Alaska regulations and guidelines with an emphasis on operator and public safety. This course is designed to train operators for rural Alaska Class II and Class III landfills and passing grade results in formal recognition by the Solid Waste Association of North America-Alaska (SWANA-Alaska).
Lecture + Lab + Other: 1 + 0 + 0

ENVI F117  Community Spill Response
1 Credit
Offered as Demand Warrants
Overview of the responses to petroleum and other spills that threaten community health with emphasis placed upon the issues, techniques and the basic elements of spill response in Alaskan communities. Topics include: storage tanks above and underground, spill contamination site treatment, state and federal governmental regulations related to spills, spill reporting/incident action plans, and practical procedures in spill response.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F120  Home Energy Basics
1 Credit
Offered Fall
Basics of space heating and electricity use and production for Alaskan homes. Main topics include fundamentals of physics related to home energy, lighting and appliances, energy bills, building science, retrofits, home renewable energy systems. Course emphasizes how to decrease fossil fuel consumption of homes.
Lecture + Lab + Other: 1 + 0 + 0
ENVI F121  Building Ventilation and Energy
1 Credit
Offered Spring
Basics of indoor air quality and its relationship to ventilation and energy use in buildings. Main topics include types of indoor air pollutants; basic science related to moisture, condensation, and mold; and heat recovery ventilation. Course emphasizes practical ways of how homeowners can maintain healthy indoor air while keeping their energy bill low.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F122  Energy Efficient Building Design and Simulation
1 Credit
Offered Spring
In this course, students gain basic practical knowledge related to the process of designing energy efficient buildings, as applied to both new construction and retrofits. Main topics covered include basic building science, principles and techniques of energy efficient construction, and building energy simulations.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F130  Introduction to the National Environmental Policy Act
1 Credit
Offered Spring
Provides a brief introduction to the National Environmental Policy Act (NEPA). This course will explain what community members need to do to be heard in the NEPA process with special emphasis on public involvement and Environmental Impact Analysis (EIA). The course covers the roles and the content of scoping and Environmental Assessments in relation to key natural resource development projects in rural Alaska.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F150  Viewpoints in Environmental Studies
1 Credit
Offered As Demand Warrants
Discussions and activities will focus on how scientists or research technicians evaluate environmental issues. The course is intended for first year college students and community members. Specific topics may include sustainability, resource development, ecosystem management, indigenous viewpoints, building technology, appropriate energy applications, and analysis of data. Topics announced prior to each offering and course may be repeated for credit towards a certificate or degree program to a maximum of 3 credits.
Lecture + Lab + Other: 1 + 0 + 0

ENVI F160  Internship in Environmental Studies
1-2 Credits
Offered As Demand Warrants
Under the guidance of a UAF Bristol Bay Campus-approved agency or business (public or private that monitors, tests, analyzes or studies the environment), students gain supervised pre-professional experience in environmental studies. The intern will explore the interdisciplinary aspects of field or laboratory research, build practical expertise and make contacts. Internships make one to ten weeks of full-time commitment to the agency or business and when completed make public presentations on the experience.
Prerequisites: ENVI F101.
Lecture + Lab + Other: 0 + 0 + 3.1-15.4

ENVI F220  Introduction to Sustainable Energy
3 Credits
Offered Fall
Introduction to societal problems and solutions related to its energy use and production. Problems discussed are mainly related to the extent of sustainability of current energy practices. Solutions discussed cover both energy efficiency and renewable energy.
Prerequisites: DEVM F105 or CTT F106 or TTCH F131.
Recommended: ENVI F101; ENVI F120.
Lecture + Lab + Other: 3 + 0 + 0

ENVI F250  Current Topics in Environmental Studies
1-3 Credits
Offered As Demand Warrants
Using multiple scientific viewpoints, a specific environmental issue is explored through case studies and in-depth discussions with an emphasis on complex connections between ecosystems and society. Themes include sustainability, resource development, indigenous viewpoints, resource management, building technology, and energy applications. Topics announced prior to each offering and course may be repeated for credit towards a certificate or degree program to a maximum of 3 credits.
Prerequisites: ENVI F101; WRTG F111X; 100-level science class.
Lecture + Lab + Other: 3 + 0 + 0

ENVI F260  Field Techniques for Environmental Technicians
2 Credits
Offered Summer
Provides hands-on instruction in interdisciplinary field and laboratory techniques used by environmental technicians. Basic methods for sampling and studying terrestrial or aquatic ecosystems will be introduced. Students will participate in data collection and analysis procedures as part of an independent research project.
Prerequisites: ENVI F101 or NRM F101; ENVI F110; 4 credit lab-based F100-science course.
Recommended: CIOS F100; CIOS F135.
Lecture + Lab + Other: 1 + 3 + 0

ENVI F265  Introduction to Methods in Environmental Studies Reporting
2 Credits
Offered Fall
Introduces basic data collection methods used in environmental studies then concentrates on research skills necessary to analyze, interpret, and document field and laboratory data and the technical reporting processes. The course is designed to integrate raw environmental data into a technical report covered include ecosystem functions, energy, biodiversity, that can be presented in scientific meeting format.
Prerequisites: ENVI F101 or NRM F101; ENVI F110; ENVI F260; a lab-based F100 level science course.
Recommended: ENGL F104 or WRTG F111X; ENVI F160.
Lecture + Lab + Other: 1.5 + 0 + 1.5
Ethnobotany (EBOT)

EBOT F100  Introduction to Ethnobotany  (a)
3 Credits
Basic concepts of botany and ethnobotany, with emphasis on the
native flora of Alaska and how people use these plants. Basic plant
biology and taxonomy; scientific methods of plant collection, including
identification and curation; use of native Alaska plants for food and
medicines; ethnobotanical methods of collecting plant-use information
from indigenous cultures and ways that this information contributes
to other fields of study, such as resource management, community
development, and human health.
Lecture + Lab + Other: 2 + 3 + 0

EBOT F200  Seminar in Ethnobotany  (a)
1 Credit
Offered Spring
Surveys basic concepts of ethnobotany and ethnoecology, with
emphasis on how people use plants, the role of plants in traditional food
systems, and the dynamics of human-plant-ecosystem interactions
in a context of rapid social, ecological and climatic change. Lectures
and discussion focus specifically on plant use in Alaska and other high
latitude geographic and ecological settings, but ethnobotanical research
in mid latitude and tropical settings will be referenced where appropriate.
Students will gain a basic understanding of plant biology and taxonomy;
plants and ecosystem services; the use of native Alaska plants for food
and medicines; the economics of innovative plant-based businesses;
and the cultural and economic significance of plant use to other cultures
worldwide.
Prerequisites: EBOT F100.
Lecture + Lab + Other: 1 + 0 + 0

EBOT F210  Ethical Wildcrafting  (a)
1 Credit
Offered Fall
Provides an understanding of the industry of wildcrafting: the gathering,
harvesting, processing and in some cases, marketing of non-timber
forest products. Specific examples from Alaska will be used to illustrate
all aspects of this course, from identification of native flora, to a
conceptualization of the unique market niche that Alaskan natural
products fill, to native plant propagation and effects of invasive plants.
Prerequisites: EBOT F100.
Lecture + Lab + Other: 1 + 0 + 0

EBOT F220  Ethnobotanical Techniques  (a)
2 Credits
Offered Spring
Provides required skills for conducting field investigations into the human
use of plants. Focuses on interviewing elders about native plant use
and methods for conducting structured and non-structured interviews,
plant collection, participant observation and data analysis. Ethical issues
in ethnobotany, e.g., intellectual property rights, benefit-sharing and
conservation of native plants.
Prerequisites: EBOT F100; EBOT F200.
Lecture + Lab + Other: 1.5 + 0 + 1.5

EBOT F230  Ethnobotanical Chemistry  (a)
3 Credits
Offered Fall
Basic understanding of chemical structure and function of medicinally
active plant compounds. How and why plants produce primary and
secondary compounds, how humans use these compounds and methods
used to isolate and deliver plant-derived compounds. How drugs are
derived from plants and the ethics of bioprospecting. Medicinal flora of
Alaska from a chemical perspective.
Prerequisites: EBOT F100; CHEM F103X or CHEM F105X.
Lecture + Lab + Other: 3 + 0 + 0

EBOT F250  Applied Ethnobotany Fall  (a)
2 Credits
Offered Fall
This is the fall section of a year-round course cycle consisting of two non-
sequential applied courses (fall and spring) that explore the seasonally-
appropriate cultural uses of plants in a Native and non-native, mainly
Alaskan, context. Emphasis will be placed on the underlying scientific
aspects of harvesting and using plants. Students will deepen their
understanding of human-plant relationships which will guide them into
further studies in ethnobotany and related disciplines.
Prerequisites: EBOT F100.
Lecture + Lab + Other: 1.5 + 0 + 3

EBOT F251  Applied Ethnobotany Spring  (a)
2 Credits
Offered Spring
This is the spring section of a year-round course cycle consisting of two non-
sequential applied courses (fall and spring) that explore the seasonally-appropriate uses of plants in a Native and non-native, mainly
Alaskan, context. Emphasis will be placed on the underlying scientific
aspects of harvesting and using plants. Students will deepen their
understanding of human-plant relationships which will guide them into
further studies in ethnobotany and related disciplines.
Prerequisites: EBOT F100.
Lecture + Lab + Other: 1.5 + 0 + 3

EBOT F336  Ethnomycology  (s)
3 Credits
Offered Spring
As an introductory overview of ethnomycology, the course aims to
provide students with greater awareness and appreciation of the ways in
which the study of the human relationships with fungi can shed light on
broader cultural processes and socioecological interactions. Scholarly
investigation of human beliefs and practices surrounding mushrooms
and other fungi is known as a study in ethnomycology.
Prerequisites: EBOT F100 or ANTH F336.
Cross-listed with ANTH F336.
Lecture + Lab + Other: 3 + 0 + 0

Film and Performing Arts (FLPA)

FLPA F101  Theatre Practicum  (h)
1-3 Credits
Participation in drama workshop or lab production as performer or
technical staff member. Credit in this course may not be applied to a
FLPA major program.
Lecture + Lab + Other: 0 + 0 + 0
FLPA F105X  History of the Cinema (h)
3 Credits
History and development of the medium of film in the U.S. and abroad during the last 100 years. Content will vary each semester.

Cross-listed with COJO F105X.
Attributes: UAF GER Arts Req

Lecture + Lab + Other: 3 + 0 + 0

FLPA F121  Fundamentals of Acting (h)
3 Credits
This class introduces basic stage acting techniques for people with little or no prior acting experience. The course will emphasize physical, emotional, and imaginative awareness and will include monologue and scene work, character analysis and improvisation.

Lecture + Lab + Other: 3 + 0 + 0

FLPA F130A  Beginning Jazz Dance
1 Credit
Develop a repertoire of jazz dance movement and terminology including plies, isolations, stretches, traveling steps, battements, pas de burres, jazz slides and turns. History of jazz dance.

Cross-listed with RECR F130A.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130B  Intermediate Jazz Dance
1 Credit
Develop a repertoire of a jazz dance movement and terminology including plies, isolations, stretches, traveling steps, battements, pas de burres, jazz slides and turns. History of jazz dance.

Cross-listed with RECR F130B.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130C  Advanced Jazz Dance
1 Credit
Develop a repertoire of jazz dance movement and terminology including plies, isolations, stretches, traveling steps, battements, pas de burres, jazz slides and turns. History of jazz dance.

Cross-listed with RECR F130C.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130D  Modern Dance
1 Credit
Develop a repertoire of modern dance movement and terminology including contraction and release, swings, triplets, fall and recovery, rolls and improvisations.

Cross-listed with RECR F130D.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130E  Beginning Ballroom Dance
1 Credit
Students with little or no background in social dance. Our aim is to have a good time and build a strong foundation for future learning. Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka.

Cross-listed with RECR F130E.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130F  Intermediate Ballroom Dance
1 Credit
Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka. Our aim is to have a good time and build a strong foundation for future learning. This course is for students with a beginning background in social dance.

Cross-listed with RECR F130F.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130G  Advanced Ballroom Dance
1 Credit
Dances covered include waltz, foxtrot, single-count swing, salsa, cha cha, merengue and, time permitting, polka. Our aim is to have a good time and build an even stronger foundation for future learning. This course is for students with an intermediate background in social dance.

Cross-listed with RECR F130G.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130H  Beginning Ballet
1 Credit
Instruction and practice in ballet at beginning levels.

Cross-listed with RECR F130H.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130J  Intermediate Ballet
1 Credit
Instruction and practice in ballet at intermediate levels.

Cross-listed with RECR F130J.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130K  Advanced Ballet
1 Credit
Instruction and practice in ballet at advanced levels.

Cross-listed with RECR F130K.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130L  Square Dance
1 Credit
Instruction and practice in square dance.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130M  Round Dance
1 Credit
Instruction and practice in round dances.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130N  Middle Eastern Dance
1 Credit
Offered As Demand Warrants
Designed for students with some or no background in Middle Eastern dance or anyone who wants to refine their technique and gain a deeper understanding of the different styles, history and evolution of Middle Eastern dance from social dance to performance art. Majority of semester will focus on basic dance vocabulary and choreography as well as dancing with props such as veils and finger cymbals.

Cross-listed with RECR F130N.

Lecture + Lab + Other: 0 + 3 + 0

FLPA F130Q  Beginning Hip Hop
1 Credit
Offered As Demand Warrants
Introduction to basic movements and terminology of hip hop dances and associated body movements. Students will gain these principles and an ability to execute maneuvers presented in class.

Cross-listed with RECR F130Q.

Lecture + Lab + Other: 0 + 3 + 0
FLPA F130R  Beginning Break Dance
1 Credit
Offered Fall
Introduction to basic movements and terminology of break dancing, and an understanding of associated body movements. Students will gain an understanding of these principles and an ability to execute maneuvers presented in class.
Cross-listed with RECR F130R.
Lecture + Lab + Other: 0 + 3 + 0

FLPA F130S  Beginning Contemporary Dance
1 Credit
Offered As Demand Warrants
Contemporary dance is an opportunity for students to explore contemporary dance movement, and gain strength and flexibility to improve their ability to dance. Designed to introduce students to contemporary dance, the course will be a combination of stretching, conditioning, and dancing. Students will be expected to demonstrate an understanding of basic contemporary dance principles and interpretation upon completion.
Cross-listed with RECR F130S.
Lecture + Lab + Other: 0 + 3 + 0

FLPA F130T  Beginning Lyrical Dance
1 Credit
Offered As Demand Warrants
Instruction and practice in lyrical dance at the beginning level. Students will gain an understanding of body movements and choreographic styles of lyrical dance, as well as an understanding of one's physical self as a dancer.
Cross-listed with RECR F130T.
Lecture + Lab + Other: 0 + 3 + 0

FLPA F130V  Beginning Swing Dance
1 Credit
Offered As Demand Warrants
Introduction to several forms of swing dance. Learn swing dance principles, techniques and steps to build a foundation for future learning and enjoyment. Dances will include Four Count (Country) Swing, East Coast Swing, West Coast Swing, and Hustle among others.
Cross-listed with RECR F130V.
Lecture + Lab + Other: 0 + 3 + 0

FLPA F161X  Introduction to Alaska Native Performance  (h, a)
3 Credits
For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre, mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from Alaska Native heritage.
Cross-listed with ANS F161X.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 2 + 3 + 0

FLPA F190  Audition or Portfolio Review Participation
0 Credit
Offered Fall
FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "town" meetings.
Lecture + Lab + Other: 0 + 0 + 0

FLPA F191  Audition or Portfolio Review Participation
0 Credit
Offered Spring
FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "town" meetings.
Lecture + Lab + Other: 0 + 0 + 0

FLPA F200X  Performance, Production and the Audience  (h)
3 Credits
Understanding and appreciation of dramatic performance in culture, theatre and film through an exploration of its diverse styles, influences and developments. Topics include performance theories, the creative process, historical and cultural contexts and popular movements and trends.
Prerequisites: Placement in WRTG F111X.
Attributes: UAF Core Aesthetic Appreciation, UAF GER Arts Req
Lecture + Lab + Other: 3 + 0 + 0

FLPA F201  Theatre Practicum  (h)
1-3 Credits
Participation in drama workshop or lab production as a performer or technical staff member. Credit in this course may not be applied to a FLPA major program.
Lecture + Lab + Other: 0 + 0 + 0

FLPA F215X  Dramatic Literature and History  (h)
3 Credits
Reading, analyzing, and categorizing plays as maps for theatrical production. Students will be exposed to a broad range of plays from major periods in theatre history including the classical and contemporary Western canon.
Prerequisites: WRTG F111X (may be taken concurrently).
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 3 + 0 + 0

FLPA F217X  Introduction to the Study of Film  (h)
3 Credits
Offered Spring
An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects.
Prerequisites: WRTG F111X.
Cross-listed with ENGL F217X; COJO F217X.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 2 + 2 + 0

FLPA F231  Previsualization and Preproduction  (h)
3 Credits
Offered Fall
Previsualization is a collaborative process that generates preliminary versions of shots or sequences, predominantly using 3D animation tools and a virtual environment. It enables filmmakers to visually explore creative ideas, plan technical solutions and communicate a shared vision for efficient production. Laying a foundation for cinema production, this course will explore screenwriting, storyboarding, previsualization animation, animatics and film pre-production approaches. This course will focus on developing original stories for animation or dramatic film productions and preparing those concepts for cinematic production.
Cross-listed with ART F231.
Lecture + Lab + Other: 3 + 0 + 0
FLPA F241 Basic Stagecraft (h)  
4 Credits  
Materials of scene construction, painting, lighting design and their use, safe use of standard construction tools, fundamentals of theatre drafting. Theatre concentration FLPA majors are encouraged to fulfill this requirement by their junior year.  
Lecture + Lab + Other: 2 + 5 + 0  

FLPA F247 Introduction to Production Design (h)  
3 Credits  
Exploration and application of the elements of design as they relate to theatre, dance, film, video and other art forms.  
Recommended: FLPA F215X or FLPA F241.  
Lecture + Lab + Other: 3 + 0 + 0  

FLPA F251 Introduction to Video Production  
4 Credits  
Offered Fall  
An introduction to video production with an emphasis on television studio production.  
Cross-listed with COJO F251.  
Lecture + Lab + Other: 2 + 5 + 0  

FLPA F258 Lights, Camera, Audio! (h)  
3 Credits  
Offered Spring Even-numbered Years  
Focusing on what actually makes a video, we will explore lighting and sound design techniques to improve the quality of video projects. Idealized and practical tactics will be investigated.  
Lecture + Lab + Other: 3 + 0 + 0  

FLPA F260 Digital Video Editing  
3 Credits  
Offered As Demand Warrants  
Introduction to the technical and aesthetic aspects of non-linear digital video editing. Students will go from little or no experience in non-linear editing to being comfortable with some of the advanced editing techniques. Address motion picture editing theories that are not bound to time or specific editing technology.  
Cross-listed with COJO F290.  
Lecture + Lab + Other: 3 + 0 + 0  

FLPA F271 Film Set Production I  
3 Credits  
Offered Fall  
Produce a short dramatic film including concept and script development, basic camera and shooting techniques, working with actors/directing fundamentals, location scouting, production schedule development, basic non-linear editing techniques, and DVD authoring. Students do not need previous experience making movies to take this class.  
Recommended: FLPA F121; FLPA F231; FLPA F247.  
Lecture + Lab + Other: 3 + 0 + 0  

FLPA F280 Video Storytelling (h)  
3 Credits  
Offered Fall  
Basics of digital video production technology, composition, audio, lighting and editing as it relates to primarily nonfiction filmmaking. Students will conclude the course by producing their own short videos.  
Cross-listed with COJO F280.  
Lecture + Lab + Other: 3 + 0 + 0  

FLPA F281 Modern Dance (h)  
2 Credits  
Introduction to dance combines elements of modern, jazz and improvisational styles. Includes warm-up, stretches, locomotor movements (walking, running and leaping), set dance combinations, and improvisational activities. Specific readings, individual journals and informal dance presentations required. Open to all experience levels.  
Lecture + Lab + Other: 1.5 + 1.5 + 0  

FLPA F289 Reel Workshop/Review  
0 Credit  
Offered Spring  
FLPA Film concentration majors are required to participate in Reel Workshop/Review every year. Annual participation as a registered student begins sophomore year, and continues sequentially for each year of attendance. Students will participate in a workshop on creating a film reel, have time to develop that reel, then present their industry reel and resume to faculty for professional development. FLPA Film concentration majors are also expected to attend all department "Town Hall" and safety meetings.  
Lecture + Lab + Other: 0.5 + 0.5 + 0  

FLPA F290 Audition or Portfolio Review Participation II  
0 Credit  
FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "Town Hall" meetings.  
Lecture + Lab + Other: 0 + 0 + 0  

FLPA F291 Audition or Portfolio Review Participation II  
0 Credit  
FLPA Theatre concentration majors are required to participate in auditions and/or portfolio reviews every semester. FLPA Theatre concentration majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all Theatre & Film Department "Town Hall" meetings.  
Lecture + Lab + Other: 0 + 0 + 0  

FLPA F298 Undergraduate Research  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 1-3  

FLPA F308 Film Criticism (h)  
3 Credits  
Theoretical approaches to viewing, analyzing and evaluating film and television program content.  
Cross-listed with COJO F308.  
Lecture + Lab + Other: 3 + 0 + 0  

FLPA F310 Acting for the Camera (h)  
3 Credits  
Students will apply skills introduced in Fundamentals of Acting, to acting for the camera. By acting in numerous on-camera exercises, television and film scenes, the class will expand each performer's expressiveness for the camera. May be repeated twice for credit.  
Prerequisites: FLPA F121.  
Lecture + Lab + Other: 3 + 0 + 0
FLPA F320  Acting II: Voice and Speech  
3 Credits  
Offered Alternate Years  
Vocal training for actors through introduction to Fitzmaurice and Linklater techniques. Course will include basic vocal anatomy, introduction to the International Phonetic Alphabet, monologue performance and scene study.  
Prerequisites: FLPA F121.  
Lecture + Lab + Other: 3 + 0 + 0

FLPA F321  Acting III: Movement (h)  
3 Credits  
Offered Alternate Years  
This course introduces the principles of stage movement and period acting. The class will include introduction to movement dynamics, contact improvisation, stage combat, physical character development, and direction of short scenes and videos.  
Prerequisites: FLPA F121; FLPA F320.  
Lecture + Lab + Other: 3 + 0 + 0

FLPA F331  Directing Film/Video (h)  
3 Credits  
Offered Spring  
Introduction to the history, theory and basic concepts of film direction. Includes interpretative script analysis, creative visualization, conceptualization, use of space, working with actors and designers, and direction of short scenes and videos.  
Prerequisites: FLPA F231; FLPA F271; FLPA F260 or COJO F290.  
Recommended: FLPA F121; FLPA F217X or ENGL F217X; FLPA F215X.  
Lecture + Lab + Other: 1 + 4 + 0

FLPA F332  Stage Directing I (h)  
3 Credits  
History, theory and basic concepts of stage direction. Interpretive script analysis, creative visualization, conceptualization, use of space, and focus, working with actors and designers and possible direction of short scenes.  
Prerequisites: FLPA F121; FLPA F215X.  
Lecture + Lab + Other: 3 + 0 + 0

FLPA F334  Movies and Films: Watching and Analyzing (W, h)  
3 Credits  
Rotating thematic topics in the art of classic cinema (films) and the popular mass media (movies). Comparative analysis of classics and recent motion pictures is used to present elements of film language, analysis and criticism.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0

FLPA F341  Intermediate Stagecraft (h)  
3 Credits  
An examination of the less common scenic materials with methods and techniques for their use. Students will spend approximately $40 for materials.  
Prerequisites: FLPA F241.  
Lecture + Lab + Other: 2 + 2 + 0

FLPA F347  Lighting Design (O, h)  
3 Credits  
Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained from the experiments. Students will spend approximately $40 for materials.  
Prerequisites: COJO F131X or COJO F141X.  
Recommended: FLPA F241.  
Cross-listed with ART F347.  
Lecture + Lab + Other: 3 + 0 + 0

FLPA F348  Sound Design for the Entertainment Industry (h)  
3 Credits  
Offered Spring Odd-numbered Years  
Exploration and application of the elements of design as they relate to sound for theatre, dance, film, video, and other art forms, and life in American and other cultures. Production work is required.  
Recommended: FLPA F241.  
Lecture + Lab + Other: 2 + 2 + 0

FLPA F351  Makeup for Theatre (h)  
3 Credits  
Offered Spring  
Theatrical makeup for actors, teachers, directors and other theatre workers; makeup materials and use, age and character makeup, injuries and horror, Kabuki, cross-gender, animal, illusory and plastic relief, crepe hair beards, and influence of lighting. Students will spend approximately $85 for materials and book.  
Lecture + Lab + Other: 1 + 4 + 0

FLPA F361  Advanced Alaska Native Performance (a)  
3 Credits  
In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester.  
Prerequisites: ANS F161X or FLPA F161X.  
Cross-listed with ANS F361.  
Lecture + Lab + Other: 2 + 3 + 0

FLPA F368  Topics in American Film History (s)  
3 Credits  
Offered As Demand Warrants  
American film and how it shapes and warps popular perceptions of America’s past. A historical contrast according to Hollywood with the views and interpretations of historians. Content will vary depending on the specific genre or period of focus, such as World War II, the Vietnam War, the Great Depression, the Cold War and development of the West, etc. Course may be repeated for credit when content varies.  
Prerequisites: WRTG F111X; junior standing.  
Cross-listed with HIST F368; COJO F368.  
Lecture + Lab + Other: 3 + 0 + 0

FLPA F371  Digital Imaging (O, h)  
3 Credits  
This course focuses on creating and manipulating digital images, including digital painting and photography. The varied ethical issues engendered by this expertise will be addressed in depth. Skills and knowledge useful for digital photography, digital video compositing and digital painting will be covered.  
Prerequisites: ART F161 or ART F271 or ART F284 or COJO F204 or FLPA F260 or COJO F290; COJO F313X or COJO F141X.  
Cross-listed with ART F371; COJO F371.  
Lecture + Lab + Other: 1 + 4 + 0
FLPA F381 Indigenous World in Film (W, h, a) 3 Credits
Offered As Demand Warrants
The history and appreciation of Indigenous films, with an emphasis on Alaska Native contributions through select films, readings and guest speakers. Analysis of social impacts of portrayals and treatment of indigenous peoples while learning to critically analyze films through understanding film techniques and terminology. Preview of the business and opportunities in the film industry.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Recommended: ART F200X, MUS F200X, or FLPA F200X.
Cross-listed with ANS F381.
Lecture + Lab + Other: 1.5 + 2.4 + 0

FLPA F389 Reel Workshop/Review 0 Credit
Offered Spring
FLPA Film concentration majors are required to participate in Reel Workshop/Review every year. Annual participation as a registered student begins sophomore year, and continues sequentially for each year of attendance. Students will participate in a workshop on creating a film reel, have time to develop that reel, then present their industry reel and resume to faculty for professional development. FLPA Film concentration majors are also expected to attend all department "Town Hall" and safety meetings.
Prerequisites: FLPA F289.
Lecture + Lab + Other: 0.5 + 0.5 + 0

FLPA F401 Theatre Practicum: Performance (h) 1-3 Credits
Participation in drama workshop or lab production as a performer. Up to 3 credits of performance practicum may be applied to a FLPA major program. Course may be repeated for credit.
Lecture + Lab + Other: 1-3 + 0 + 0

FLPA F402 Theatre Practicum: Technical (h) 1-3 Credits
Participation in drama workshop or lab production as a technical staff member. Up to 8 credits of technical practicum may be applied to a FLPA major program. Course may be repeated for credit.
Prerequisites: FLPA F241.
Lecture + Lab + Other: 1-3 + 0 + 0

FLPA F403 Practicum in Film Production: FRAME 3-6 Credits
The Film Reel Alaska Mentorship Experience (FRAME) manages a film service company for the University of Alaska Fairbanks. Students will work with program mentors, clients and researchers to develop a variety of content for academic, industrial and creative research activities. Students will be directly engaged in professional project development, production and distribution. May be repeated for credit.
Prerequisites: FLPA F271; FLPA F231; FLPA F260.
Lecture + Lab + Other: 1-2 + 0 + 4-10

FLPA F413 Analyzing Global Performance (W, h) 3 Credits
Investigation of the structure of screenplays, playscripts and various performance modes from around the world designed to develop skills in analysis and interpretation for performance in theater and film.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.
Lecture + Lab + Other: 3 + 0 + 0
FLPA F427  Topics in Film Studies (h)  
3 Credits  
Offered Spring  
Intensive study of variable topics in film studies. May focus on themes such as race or war in film; a specific period such as films of the 1940s: particular genres such as horror, film noir, or the musical, an important director, or an aspect of contemporary film theory. Intensive readings and research in contemporary film theory and criticism will foster in-depth understanding of chosen topic. Course may be repeated two times for credit when content varies.  
Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Cross-listed with ENGL F427.  
Lecture + Lab + Other: 2 + 2 + 0  
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FLPA F431  Film Set Production II  
3 Credits  
Offered Alternate Years  
In depth practice of film production supported by investigation into the history and theory of cinema. Script preparation, storyboarding and animatics, blocking actors and staging the camera, sound design, special effects, and editing techniques will be explored. Students will produce a capstone film project while serving as a department key.  
Prerequisites: FLPA F231 or ART F231; FLPA F271; FLPA F260 or COJO F290; FLPA F331.  
Lecture + Lab + Other: 3 + 0 + 0  
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FLPA F433  Studies in French and European Cinema (h)  
3 Credits  
Offered Spring Odd-numbered Years  
The course discusses the evolution of French and European cinema in historical and artistic contents.  
Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F301 or FREN F302.  
Cross-listed with FREN F433.  
Lecture + Lab + Other: 2 + 2 + 0  
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FLPA F447  Lighting Design II (h)  
3 Credits  
Further exploration and application of elements of design (color, texture, intensity, line, composition) as they relate to lighting for theatre, dance, other art forms and life. Production work required.  
Prerequisites: FLPA F347.  
Lecture + Lab + Other: 2 + 2 + 0  
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FLPA F458  SFX Up Your Video (h)  
3 Credits  
Offered Spring Odd-numbered Years  
An exploration into adding special effects to your video projects. Will include "green screen," titles, animation, color grading, DVD menu design and more.  
Prerequisites: FLPA F260 or COJO F290; FLPA F271 or FLPA F280 or COJO F280; video editing experience.  
Cross-listed with COJO F458.  
Lecture + Lab + Other: 3 + 0 + 0  
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FLPA F460  Cross-cultural Filmmaking (h)  
3 Credits  
Offered Fall Odd-numbered Years  
The use of film as a documentary tool for describing and understanding scientific and cultural phenomenon has led to the education of generations. Understanding the implications of our film work with a theoretical base for cultural understanding, scientific need and educational potentials will strengthen the film's integrity and production methods in creating video documents useful as a scientific/cultural record. Pre-production will include research of archival visual media, oral histories and print materials; analysis of educational and scientific funding and distribution options and preliminary interviews, location scouting and film treatment. Production will include time on location with small film crews, media logging and record keeping. Post-production will include basic editing of sequences for distribution.  
Prerequisites: Junior, senior or graduate standing.  
Cross-listed with ANTH F460; ART F460.  
Lecture + Lab + Other: 3 + 0 + 0  
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FLPA F470  Advanced Film and Video Directing  
3 Credits  
Offered Fall Even-numbered Years  
In depth investigation into the history, theory and basic concepts of film and video direction. Script preparation, story board, blocking actors and staging the camera, sound and editing. Projects include directing and shooting short videos.  
Recommended: FLPA F331.  
Lecture + Lab + Other: 1 + 6 + 0  
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FLPA F472  3D Animation  
3 Credits  
Offered Fall  
Concept and technique of 3D computer generated animation with applications in fine and commercial art and science. Students will produce a series of three dimensional animation projects which will introduce them to the tools and concepts used by animation and visualization professionals. Note: May be repeated for credit.  
Prerequisites: ART F231 or FLPA F231; COJO F131X or COJO F141X; ART F371 or FLPA F371.  
Cross-listed with ART F472; COJO F472.  
Lecture + Lab + Other: 1 + 4 + 0  
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FLPA F473  Politics and Film  
3 Credits  
Offered As Demand Warrants  
Engage film with a critical political perspective. Concepts related to political power, society, and nature are surveyed through political science literature and politics-themed films. Quests for political power, difficulties of governance, politics of campaigns and elections, privacy and government surveillance, and political violence are concepts explored in this course.  
Prerequisites: PS F101X.  
Cross-listed with PS F473.  
Lecture + Lab + Other: 3 + 0 + 0
### Digital Video Compositing (FLPA F475)  
3 Credits  
Offered As Demand Warrants  
Digital compositing techniques for creating moving imagery. The course covers video manipulation, layering images, synthesizing realistic video imagery, integration of live action and computer generated animation. Course can be repeated for a total of nine credits with permission of instructor.  
**Prerequisites:** ART F472 or COJO F472 or FLPA F472.  
**Cross-listed with** ART F475.  
**Lecture + Lab + Other:** 1 + 4 + 0

### Documentary Filmmaking (FLPA F480)  
3 Credits  
Offered Spring  
Basics of hands-on documentary filmmaking techniques, including preproduction, production and postproduction. Different documentary filmmaking directing styles and the process of distributing a documentary. Each student will produce a short documentary as the capstone of the course.  
**Prerequisites:** Basic experience in shooting and editing video.  
**Cross-listed with** COJO F480.  
**Lecture + Lab + Other:** 3 + 0 + 0

### Advanced Topics in Film or Stage Production (FLPA F481)  
3 Credits  
Offered As Demand Warrants  
This course offers advanced students unique opportunities for deeper study in areas of film or stage production. Advanced topics may include cinematography, special effects, audio mixing, costume design, etc.  
**Prerequisites:** Junior or senior standing; FLPA F271.  
**Recommended:** FLPA F260 or FLPA F121.  
**Lecture + Lab + Other:** 2 + 2 + 0

### Dance Performance (FLPA F482)  
2 Credits  
Exploration and performance of expressive dance and movement. Includes development of an original choreography for public performance. Course is for advanced dance, acting and directing students with varying experience.  
**Prerequisites:** FLPA F281; or movement performance experience.  
**Lecture + Lab + Other:** 1.5 + 1.5 + 0

### Russian and Soviet Cinema (FLPA F484)  
3 Credits  
Offered Fall Odd-numbered Years  
Study of Russian culture and society through the medium of film, focusing on areas of Russian cinema and genres. Films by award-winning directors. Designed to familiarize students with Russian history and culture from 1900s to the present, and present topics in film theory. Readings and topics discussed reflect issues of current interest.  
**Prerequisites:** Junior standing.  
**Cross-listed with** RUSS F484.  
**Lecture + Lab + Other:** 3 + 0 + 0

### Dramatic Writing (FLPA F488)  
3 Credits  
Offered Fall Odd-numbered Years  
Introduction to the craft of dramatic writing for theater and film, with an emphasis on dramatic storytelling. Course will focus on giving students a practical understanding of the uses of story structure, setting, character, plot and dialog, and how these elements work together to create compelling drama.  
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; sophomore standing.  
**Cross-listed with** ENGL F488.  
**Lecture + Lab + Other:** 3 + 0 + 0

### Reel Workshop/Review (FLPA F489)  
0 Credit  
Offered Spring  
FLPA Film concentration majors are required to participate in Reel Workshop/Review every year. Annual participation as a registered student begins sophomore year, and continues sequentially for each year of attendance. Students will participate in a workshop on creating a film reel, have time to develop that reel, then present their industry reel and resume to faculty for professional development. FLPA Film concentration majors are also expected to attend all department "Town Hall" and safety meetings.  
**Prerequisites:** FLPA F389.  
**Lecture + Lab + Other:** 0.5 + 0.5 + 0

### Undergraduate Research (FLPA F498, FLPA F498P)  
1-6 Credits  
**Lecture + Lab + Other:** 0 + 0 + 1-6

### Thesis Project (FLPA F499)  
1-3 Credits  
Final step in film or stage training which involves creating a final film or stage creative project as a filmmaker, actor, director, designer, playwright or screenwriter. Projects can include producing a film project with the support of a faculty advisor, performing a leading role on a theatre/film UAF main-stage film or stage production or directing/designing/writing a project for the theatre/film UAF season.  
**Prerequisites:** Permission of instructor.  
**Lecture + Lab + Other:** 0 + 0 + 1-3

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**Fire Science (FIRE)**

### Principles of Emergency Services (FIRE F101)  
3 Credits  
Offered Fall  
Overview of fire protection, career opportunities in fire protection and related fields, philosophy and history of fire protection/service. Fire loss analysis, organization and function of public and private protection services. Fire departments as part of local government, laws and regulations affecting fire services, fire service nomenclature, specific fire protection functions. Basic fire chemistry and physics, introduction to fire protection systems and introduction to fire strategy and tactics.  
**Lecture + Lab + Other:** 3 + 0 + 0
FIRE F105 Fire Prevention
3 Credits
Offered Fall
The history and philosophy of fire prevention, organization and operation of a fire prevention bureau. Use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with built-in fire protection systems, fire investigation, and fire and life-safety education.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F107 Strategy and Tactics
3 Credits
Offered Spring
The principles of fire control through utilization of personnel, equipment and extinguishing agents on the fire ground.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F110 Introduction to Hazardous Waste Operations and Emergency Response
3 Credits
Offered As Demand Warrants
Review of federal and state hazardous materials laws and regulations. Career opportunities related to the field of hazardous materials including transportation, emergency response, site clean up and Incident Command System (ICS).
Lecture + Lab + Other: 3 + 0 + 0

FIRE F115 Fire Apparatus and Equipment
3 Credits
Offered Spring Even-numbered Years
Fire apparatus design, specifications and performance capabilities, effective use of apparatus in fire emergencies.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F117 Rescue Practices
3 Credits
Offered Spring
Rescue situations and techniques including vehicle extrication, rescue carries, ventilation principles, structural rescue, use of portable hand and power tools, wildland/canine search and rescue, ice and water rescue and emergency life saving principles. All students are required to wear a complete set of fire department-approved protective clothing (turnout gear). Limited quantities are available for loan through the emergency services program coordinator. An eight-hour personal protective equipment and self-contained breathing apparatus safety orientation must be completed in order to participate in live fire exercises.
Prerequisites: EMS F170.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F121 Fire Behavior and Combustion
3 Credits
Offered Fall
Theories and fundamentals of how and why fires start, spread, and how they are controlled.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F123 Fire Investigations I
3 Credits
Offered Spring Odd-numbered Years
Fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the firesetter and types of fire causes.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F127 Vessel Safety: Emergency Equipment, Procedures and Drills
1 Credit
Offered Fall
Introduction to safe boating practices and skills including boat handling, rules of navigation, proper safety equipment, weather, boat trailering, lines and knots, first aid and emergency procedures.
Lecture + Lab + Other: 1 + 0 + 0

FIRE F131 Firefighter I, Series I
3 Credits
Offered Spring, As Demand Warrants
The initial phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Limited quantities are available for loan through the Emergency Services Program coordinator.
Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).
Lecture + Lab + Other: 3 + 0 + 0

FIRE F133 Firefighter I, Series II
3 Credits
Offered Fall, As Demand Warrants
The second phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Limited quantities are available for loan through the emergency services program coordinator. An 8 hour Personal Protective equipment (PPE) and Self-Contained Breathing Apparatus (SCBA) safety orientation offered each semester must be completed in order to participate in live fire exercises.
Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).
Lecture + Lab + Other: 2 + 2 + 0
FIRE F135  Firefighter I, Series III
3 Credits
Offered Fall, As Demand Warrants
The third phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Limited quantities are available for loan through the Emergency Services program coordinator. An 8 hour Personal Protective equipment (PPE) and Self-Contained Breathing Apparatus (SCBA) safety orientation is offered each semester and must be completed in order to participate in live fire exercises.

Prerequisites: All students are required to wear a complete set of fire department approved protective clothing (turnout gear).

Lecture + Lab + Other: 2 + 2 + 0

FIRE F137  Firefighter I, Series IV
3 Credits
Offered Spring, As Demand Warrants
The final phase in a four-phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification.

Lecture + Lab + Other: 3 + 0 + 0

FIRE F143  Firefighter Internship, Series 1
1 Credit
Offered Fall
Practical experience in fire operations and training by arrangement through local fire departments.

Lecture + Lab + Other: 0 + 2 + 0

FIRE F145  Firefighter Internship, Series 2
1 Credit
Offered Spring, As Demand Warrants
Practical experience in fire operations and training by arrangement through local fire departments.

Prerequisites: FIRE F143.

Lecture + Lab + Other: 0 + 2 + 0

FIRE F147  Firefighter Internship, Series 3
1 Credit
Offered Spring, As Demand Warrants
Practical experience in fire operations and training by arrangement through local fire departments.

Prerequisites: FIRE F145.

Lecture + Lab + Other: 0 + 2 + 0

FIRE F151  Wildland Firefighter I
3 Credits
Offered Spring
Designed to provide entry-level wildland firefighters the skills and knowledge to safely function as a member of a firefighting crew. Includes fundamental knowledge of wildland fire organization, fire behavior, suppression methods, safety and the incident command system. This course is based on a number of individual National Wildfire Coordinating Group (NWCG) courses. Successful course completion combined with national age and physical fitness requirements will qualify the student for an interagency fire qualification card (red card) with a rating of Firefighter (FFT2). NWCG courses for F151 include: S-130 Firefighter Training S-190 Introduction to Wildland Fire Behavior L-180 Human Factors in Wildland Fire Service L-200 Basic ICS, ICS for Single Resource and Initial Action Incidents.

Lecture + Lab + Other: 3 + 0 + 0

FIRE F152  Wildland Firefighter II
3 Credits
Offered Spring
Provides wildland firefighters with knowledge and skills in the deployment, use, safe practices and field maintenance of engine-powered wildland firefighting tools: portable pumps and chainsaws. This course is based on National Wildlife Coordinating Group (NWCG) courses: S-211 Portable Pumps and Water Use; S-212 Wildland Fire Chainsaws. Must have the ability/strength to start a portable pump and chainsaw.

Prerequisites: FIRE F151.

Lecture + Lab + Other: 3 + 0 + 0

FIRE F153  Wildland Firefighter III
2 Credits
Offered Fall
Designed to meet the training needs of the advanced wildland firefighter. Course content includes training in use of fireline reference materials, recognition and mitigation of safety issues, and provides a solid foundation of basic leadership skills. This course is based on a number of individual National Wildfire Coordinating Group (NWCG) courses. NWCG courses included: S-131 Wildland Firefighter Type I; S-133 Look Up, Look Down, Look Around; L-280 Followership to Leadership.

Prerequisites: FIRE F151.

Lecture + Lab + Other: 2 + 0 + 0

FIRE F154  Basic Wildland Fire Safety
1.5 Credits
Offered Spring
Designed to meet the training needs of the Advanced Wildland Firefighter. The course includes development of a personal safety program and creating a list of performance standards based on the LCES mnemonic. This course is based on National Wildfire Coordinating Group (NWCG) courses. NWCG courses include: S-134 LCES.

Prerequisites: FIRE F151.

Lecture + Lab + Other: 1.5 + 0 + 0
FIRE F155  Wildland Fire Behavior I
2 Credits
Offered Spring Odd-numbered Years
This course is a classroom-based skills course designed to prepare the prospective fireline supervisor to undertake safe and effective fire management operations. Its serves to develop fire behavior prediction knowledge and skills. Fire environment differences are discussed as necessary; instructor will stress local Alaskan conditions. This course is based on a National Wildfire Coordinating Group (NWCG) course. NWCG courses include: S-290 Intermediate Wildland Fire Behavior.
Prerequisites: FIRE F151.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F157  Wildland Air Operations
3 Credits
Offered Fall Odd-numbered Years
Introduction to aircraft types and capabilities, aviation policy and safety for flying in and working with agency aircraft, tactical and logistical uses of aircraft, and requirements for helicopter take-off and landing areas. This course is designed to provide student proficiency in all areas of the tactical and logistical use of helicopters to achieve efficiency and standardization. Topics include aviation safety, aircraft capabilities and limitations, aviation life support equipment, aviation mishap reporting, pre-flight checklist and briefing/debriefing, aviation transportation of hazardous materials, crash survival, helicopter operations. Emphasis is on aviation safety. This course is based on National Wildfire Coordinating Group (NWCG) courses: S-270 Basic Air Operations; S-271 Helicopter Crewmember (FIRE F157 will not include Module A-119 which is a required field exercise for S-271. Students will need to complete this field exercise).
Prerequisites: FIRE F151.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F159  Wildland Fire Urban Interface Operations
2 Credits
Offered Fall Odd-numbered Years
Designed to assist both structural and wildland firefighters who will be making tactical decisions when confronting wildland fire that threatens life, property and improvements in the wildland/urban interface. Instructional units include interface awareness, size-up, initial strategy and incident action plan, structure triage, structure protection tactics, incident action plan assessment and update, follow up and public relations, and firefighter safety in the interface. This course is based on a National Wildland Coordinating Group (NWCG) course. NWCG courses include: S-215 Fire Operations in the Wildland/Urban Interface.
Prerequisites: FIRE F151 and FIRE F153.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F161  Incident Logistics Function
2 Credits
Offered Fall Even-numbered Years
Overview of the support and service branches of the logistics function within the incident command system. Emphasis on entry-level positions of ordering manager, receiving and distribution manager, base camp manager, equipment manager, incident communications manager, security manager and radio operator. This course is based on a number of individual National Wildfire Coordinating Group (NWCG) job aids. NWCG courses include: J-252 Ordering Manager; J-253 Receiving and Distribution Manager; J-254 Base/Camp Manager; J-255 Equipment Manager; J-257 Incident Communications Manager; J-259 Security Manager; J-158 Radio Operator.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F163  Wildland Fire Dispatch I
2 Credits
Offered Spring Odd-numbered Years
The purpose of this course is to provide students with the skills to perform as a dispatch recorder. Topics include the structure of the expanded dispatch organization, description of resource ordering processes, and the importance of effective communication skills and working relationships. Additionally, the course provides a solid foundation on the use of Resource Ordering Statusing System (ROSS), addressing the functions and capabilities of ROSS that will be used by most dispatchers. This is an interactive course that combines lecture and hands on practice in the application. This course is based on National Wildfire Coordinating Group (NWCG) courses: D-110 Expanded Dispatch Recorder; ROSS Dispatch – Basic.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F165  ICS and the Incident Planning Function
2 Credits
Offered Fall Odd-numbered Years
An overview of the Incident Command System principles and planning processes, organizational relationships with other functions, use of planning matrix board, resource management, documentation, demobilization, use of technical specialist and components of an incident action plan. This course is based on Federal Emergency Management Agency (FEMA) courses: I-200 Basic ICS: ICS for Single Resources and Initial Action Incidents; I-300 Intermediate ICS: ICS for Supervisors.
Prerequisites: FIRE F151.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F170  Incident Information
2 Credits
Offered As Demand Warrants
The purpose of this course is to provide students with the skills and knowledge needed to serve as an entry-level public information officer (PIOF) on an incident or event. The course covers establishing and maintaining an incident information operation, communicating with internal and external audiences, working with the news media, handling special situations, and long term planning and strategy. This course is based on National Wildfire Coordinating Group (NWCG) courses: S-203 Introduction to Incident Information.
Prerequisites: FIRE F151.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F176  Wildland Fire Ignition Operations
1 Credit
Offered Spring Even-numbered Years
This course introduces the roles and responsibilities of a firing boss (FIRB), common firing devices, and general firing operations and techniques. The course provides students with important information concerning general tasks required to be successful. This course is based on a National Wildfire Coordinating Group (NWCG) course: S-234: Ignition Operations.
Prerequisites: FIRE F155.
Lecture + Lab + Other: 1 + 0 + 0

FIRE F202  Fire Protection Hydraulics and Water Supply
3 Credits
Offered Spring
Provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and their application to analyze and solve water supply problems.
Prerequisites: DEVM F055 or placement into DEVM F105; FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0
FIRE F203  Hazardous Materials Chemistry I
3 Credits
Offered Fall
Basic fire chemistry relating to most categories of hazardous materials including problems of recognition, reactivity and health risks encountered by fire fighters.
Prerequisites: Satisfactory demonstration of basic chemistry knowledge (pretest).
Lecture + Lab + Other: 3 + 0 + 0

FIRE F206  Building Construction for Fire Protection
3 Credits
Offered Spring
The components of building construction that relate to fire and life safety. Focuses on fire fighter safety. Includes elements of construction and design of structures shown to be key factors when inspecting buildings, preplanning fire operations and operating emergencies.
Prerequisites: FIRE F101 or employment or experience in related field, such as fire protection, insurance, construction architecture, or engineering.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F207  Hazardous Materials Technician
3 Credits
Offered As Demand Warrants
Advanced information for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the hazardous materials technician level (EPA course #165.15).
Lecture + Lab + Other: 3 + 0 + 0

FIRE F210  Fire Administration I
3 Credits
Offered Fall
Organization and management of a fire department and the relationship of government agencies to the fire service. Emphasis on fire service leadership from the perspective of the company officer.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 1 + 0

FIRE F211  Fire Administration II
3 Credits
Offered Spring
Prerequisites: FIRE F101; FIRE F206.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F212  Building and Fire Codes
3 Credits
Offered Spring Even-numbered Years
Introduction to life safety aspects of the uniform building code. Emphasis on uniform fire code for fire inspections on existing buildings, flammable liquids, hazardous materials and special processes. Preparation for the uniform fire code exam administered by the International Conference of Building Officials.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F213  Building and Fire Codes II
3 Credits
Offered Spring
Prerequisites: FIRE F101; FIRE F206.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F214  Fire Protection Systems
3 Credits
Offered Fall
Features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection and portable fire extinguishers.
Prerequisites: FIRE F101.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F215  Advanced Hazardous Materials Technician
3 Credits
Offered As Demand Warrants
Provides increased hands-on skills for personnel with a hazardous materials technician rating. Emphasis will be placed on task proficiency in spill containment, plugging, patching, diking and valve shut-offs on large commercial transporters. Stabilization of large and small chlorine leaks and decontamination will also be covered.
Prerequisites: FIRE F207.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F216  Methods of Instruction for Emergency Services Training
3 Credits
Offered Spring Odd-numbered Years
Skills necessary to instruct emergency service courses including adult education techniques, classroom setup, use of audiovisual equipment, presentation, and evaluation methods of students and instruction. Also offered as pass/fail as FIRE F216P.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F217  Hazardous Materials Technician Refresher
1 Credit
Offered As Demand Warrants
Information and skills required for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the hazardous materials technician level.
Prerequisites: FIRE F206 or equivalent with certification that may not be expired for more than one calendar year.
Lecture + Lab + Other: 1 + 0 + 0

FIRE F218  Advanced Rescue Practices
3 Credits
Offered Fall
Provides instruction in four of the most common rescue situations that fire departments encounter in an Interior Alaska rescue: vehicular extrication, rope rescue, confined space rescue and ice/water rescue. Class stresses basic knowledge and hands-on experience. All students are required to wear a complete set of fire department-approved protective clothing (turnout gear). Limited quantities are available for loan through the Emergency Services Program Coordinator.
Prerequisites: EMS F170; FIRE F117.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F219  Rapid Intervention Company Operations
3 Credits
Offered As Demand Warrants
Provides firefighters with the knowledge and skills necessary to work safely and respond appropriately to life-threatening situations. Includes rapid intervention team building skills, self rescue techniques and the knowledge to handle a mayday or high risk/threat situation. Completion of course will qualify students for the state of Alaska certification testing process. All students are required to wear full firefighter personal protective equipment. Limited quantities of PPE are available for loan through the program coordinator.
Prerequisites: FIRE F117, FIRE F131, FIRE F133, FIRE F135 and FIRE F137; or department head approval.
Lecture + Lab + Other: 2.5 + 1 + 0
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Description</th>
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<tbody>
<tr>
<td>FIRE F220</td>
<td>Emergency Services Safety, Health and Survival</td>
<td>3</td>
<td>Fall</td>
<td>This course introduces the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavior changes throughout the emergency services. This interactive course will examine current and future issues in emergency services including close calls, near misses, line of duty deaths, risk management, mitigation, and personal and organizational accountability. Prerequisites: FIRE F101, FIRE F131, FIRE F133, FIRE F135 and FIRE F137. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>FIRE F232</td>
<td>Firefighter II</td>
<td>3</td>
<td>Summer, As Demand Warrants</td>
<td>Advanced technical study of fire alarms, communications, fire behavior, self-contained breathing apparatus, rescue, safety, ladders, fire hose, nozzles and appliances, fire streams, water supplies, sprinklers, overhaul and inspections. All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the emergency services program coordinator. Note: An eight-hour personal protective equipment and self-contained breathing apparatus safety orientation must be completed in order to participate in live fire exercises. Prerequisites: FIRE F131; FIRE F133; FIRE F135; FIRE F137. Lecture + Lab + Other: 2 + 2 + 0</td>
</tr>
<tr>
<td>FIRE F244</td>
<td>Firefighter Internship, Series 4</td>
<td>1</td>
<td>Fall</td>
<td>Practical experience in fire operations and training by arrangement through local fire departments. Prerequisites: FIRE F145 or FIRE F147. Lecture + Lab + Other: 0 + 2 + 0</td>
</tr>
<tr>
<td>FIRE F246</td>
<td>Firefighter Internship, Series 5</td>
<td>1</td>
<td>Spring</td>
<td>Practical experience in fire operations and training by arrangement through local fire departments. Prerequisites: FIRE F244. Lecture + Lab + Other: 0 + 2 + 0</td>
</tr>
<tr>
<td>FIRE F248</td>
<td>Firefighter Internship, Series 6</td>
<td>1</td>
<td>Summer, As Demand Warrants</td>
<td>Practical experience in fire operations and training by arrangement through local fire departments. Prerequisites: FIRE F246. Lecture + Lab + Other: 0 + 2 + 0</td>
</tr>
<tr>
<td>FIRE F251</td>
<td>Wildland Firefighter IV</td>
<td>3</td>
<td>Spring</td>
<td>This course is intended to meet the training needs of the first line leadership positions in wildland fire suppression. Lessons are designed to produce student proficiency in the performance of duties from initial dispatch through demobilization back to the home unit. Topics include operational leadership, preparation and mobilization, assignment preparation, size up, developing a plan of action, risk management, entrapment avoidance, safety and tactics, offline duties, demobilization, and post incident responsibilities. Portions of the course will be blended learning with some lessons online. This course is based on National Wildlife Coordinating Group (NWCG) courses: S-200 Initial Attack Incident Commander; S-230 Crew Boss (Single Resource). Prerequisites: FIRE F151; FIRE F153 and FIRE F155. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>FIRE F252</td>
<td>Wildland Fire Prevention I</td>
<td>3</td>
<td>Spring Even-numbered Years</td>
<td>Designed to enhance the basic skill and knowledge of personnel assigned responsibilities for wildfire prevention. Additionally, this course will teach sound wildland fire observation and scene of origin protection practices that enable the first responders to identify and preserve evidence of fire cause. An introduction to Alaskan wildland fire prevention statues, regulations and enforcement procedures will be included. This course is based on National Wildfire Coordinating Group (NWCG) courses: P-101 Fire Prevention Education I; FI-110 Wildland Fire Observation and Origin Protection. Prerequisites: FIRE F151. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>FIRE F253</td>
<td>Wildland Fire Investigation I</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Consistent fundamentals and technical knowledge base needed for the wildland fire origin and cause determination investigator (NVF). The concepts taught will include recognizing and conducting origin and cause determination, preservation of evidence and documentation, which will aid an investigator to perform at a professional level on a national basis. This course is based on a National Wildfire Coordinating Group (NWCG) course: FI-210 Wildland Fire Investigation I. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>FIRE F254</td>
<td>Incident Finance and Administration</td>
<td>1.5</td>
<td>Fall</td>
<td>Incident business management objectives, including duties and responsibilities of the Incident Command System (ICS) finance/administration section relating to management practices and programs. Parts of this course are presented in a blended learning format. This course is based on a National Wildfire Coordinating Group (NWCG) course: S-260 Interagency Incident Business Management. Lecture + Lab + Other: 1.5 + 0 + 0</td>
</tr>
<tr>
<td>FIRE F254P</td>
<td>Wildland Fire Business Management</td>
<td>3</td>
<td>Fall</td>
<td>Fire business management objectives, including duties and responsibilities of a fire finance section relating to management practices and programs. Procedures required in various finance positions including financial management of a large complex wildland fire. Prerequisites: FIRE F151. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
</tbody>
</table>
FIRE F255  Wildland Fire Behavior II
2 Credits
Offered Spring Even-numbered Years
This course will give students an understanding of the determinants of fire behavior through studying input datum for fire (weather, slope, fuels and fuel moisture). Operation of fire behavior prediction tools, assessing and selecting proper inputs, interpreting the results in terms of rate of spread, fire line intensity, potential for extreme fire behavior; and documentation processes. This course is based on a National Wildlife Coordinating Group (NWCG) course: S-390 Introduction to Wildland Fire Behavior Calculations.
Prerequisites: FIRE F155.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F256  Wildland Fire Planning and Multiple Use Management
3 Credits
Offered Fall Odd-numbered Years
Fire management and its role in a multiple use resource program. Includes prescribed and wildfire practices, environmental concerns, management goals and objectives, and pre-fire planning.
Prerequisites: FIRE F151; FIRE F153; FIRE F155.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F257  Wildland Fire Helicopter Management
2 Credits
Offered As Demand Warrants
A comprehensive examination of interagency government helicopter operations to prepare the student to perform the job of Helicopter Manager. Topics covered include: agency policy, flight manuals, helicopter capabilities and communications, flight following, fueling procedures, contract administration and pay documents, pre and post-use inspections, risk management and required safety procedures, general and specialized helicopter operations such as qualifying landing areas, transportation of passengers and cargo, initial attack operations, and sustained support to incidents. This course is based on a National Wildlife Coordinating Group (NWCG) course: S-372 Helicopter Management.
Prerequisites: FIRE F157.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F258  Wildland Fuels Management
3 Credits
Offered Spring Even-numbered Years
Use of fire as a resource management tool. Natural and prescribed fire planning. Development and procedures to meet management objectives, components for conducting safe, prescribed burning.
Prerequisites: FIRE F151; FIRE F153; FIRE F155; FIRE F158; FIRE F262.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F262  Wildland Fire Tactical Operations
2 Credits
Offered Fall Even-numbered Years
This course is intended to produce proficiency in the selection and implementation of wildland fire suppression tactics necessary at the strike team/task force leader level. Topics include fire line construction, use of hand tools, heavy equipment, water and engines, firing operations and using combinations of resources. This is an advanced level course for trained and experienced wildland firefighters. This course is based on a National Wildland Coordinating Group (NWCG) course: S-336 Tactical Decision Making in Wildland Fire.
Prerequisites: FIRE F155 and FIRE F251.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F264  Incident Business Practices
1.5 Credits
Offered As Demand Warrants
Incident business procedures required in entry level staff positions including financial management of a large complex incident. This course is based on a National Wildlife Coordinating Group (NWCG) course: S-261 Applied Interagency Incident Business Management.
Prerequisites: FIRE F254.
Lecture + Lab + Other: 1.5 + 0 + 0

FIRE F270  Wildland Fire Command Function
3 Credits
Offered Spring Odd-numbered Years
An overview of the command function including use of single and unified command, roles and responsibilities of the incident commander and staff, development and implementation of strategic decisions, providing information to the media, and managing the incident from initial attack of small, non-complex fires to larger, more complex initial attack suppression organizations dealing with escape attack situations.
Prerequisites: FIRE F151; FIRE F153; FIRE F155; FIRE F252.
Lecture + Lab + Other: 3 + 0 + 0

FIRE F276  Prescribed Fire I
2 Credits
Offered As Demand Warrants
Provide a thorough familiarization with the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide. Students will develop the knowledge and skills needed to prepare a prescribed fire plan, in accordance with the guide, ready for technical review and approval. This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-341 Prescribed Fire Burn Plan Preparation.
Prerequisites: FIRE F255.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F277  Prescribed Fire II
2 Credits
Offered As Demand Warrants
This course is designed to introduce students to the tools and techniques used to perform in the role of a prescribed fire burn boss. It leads the students through the duties and responsibilities associated with the position including evaluation and implementation of a prescribed fire plan. This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-301 Prescribed Fire Implementation.
Prerequisites: FIRE F251; FIRE F255.
Lecture + Lab + Other: 2 + 0 + 0

FIRE F278  Prescribed Fire III
2 Credits
Offered As Demand Warrants
This course is designed to provide students with the knowledge and skills necessary to recognize and communicate the relationships between basic fire regimes and first order fire effects, the effects of fire treatments on first order fire effects, and to maintain fire treatments to achieve desired first order fire effects. This course is based on a National Wildlife Coordinating Group (NWCG) course: RX-310 Introduction to Fire Effects.
Prerequisites: FIRE F255.
Lecture + Lab + Other: 2 + 0 + 0
First Year Experience (FYE)

FYE F100  First Year Seminar
1 Credit
Offered Fall and Spring
An introduction, intended for first-year college students, to a current area of scholarly pursuit by faculty. Learn how faculty pursue scholarship in their discipline. An opportunity for first-year students to connect to one another and a faculty member with similar interests in small group-discussion settings and learn about collegiate life. Topics will vary by instructor.
Lecture + Lab + Other: 1 + 0 + 0

Fisheries (FISH)

FISH F100  Skeleton Articulation as an Introduction to Marine Conservation Biology
2 Credits
Offered Spring
Course designed for high school students.
Prerequisites: GPA of 2.5 or higher; offered to high school juniors and seniors with at least 1 biology and 1 math class completed.
Lecture + Lab + Other: 1 + 3 + 0

FISH F101  Introduction to Fisheries  (a)
3 Credits
Offered Fall
This course surveys principles and fields of study that fisheries resource professionals use as a guide in their careers, including basic concepts associated with fish biology and fisheries management and the application of these concepts to solve complex fisheries problems. The course explores contemporary fisheries resource issues within and beyond Alaska's borders, human values associated with fish management and conservation, and the importance of fish resources for the world's economies and cultures.
Lecture + Lab + Other: 3 + 0 + 0

FISH F102  Fact or Fishin': Case Studies in Fisheries
1 Credit
Offered Fall
This seminar will promote active learning, critical thinking, and problem solving through a series of case studies involving current issues in fisheries conservation and management. Students enrolled in this course will also receive instruction on fundamental skills required to successfully complete a four-year degree at UAF. Attendance is mandatory.
Lecture + Lab + Other: 1 + 0 + 0

FISH F103  The Harvest of the Sea
2 Credits
Offered Spring
This course will explore the scientific and popular literature related to the exploitation of global marine fisheries resources. Specific topics of the course will be based on three core themes: (1) early exploitation of marine resources, leading to the need for fisheries management; (2) overexploitation of fish and marine mammal stocks driven largely by technological advancements culminating from the Industrial Revolution; and (3) the current status and future sustainability of marine fisheries resources. This course is largely discussion based; as a result, weekly attendance and preparation is a critical component of the course.
Prerequisites: FISH F102; FISH F110; placement in WRTG F111X.
Lecture + Lab + Other: 2 + 0 + 0

FISH F110  Fish and Fisheries in a Changing World
3 Credits
Offered Fall
This course is an exploration of the patterns of fish diversity, and the resilience and sustainability that results. The topics that we will cover are intended to act as foundational principles that fisheries resource professionals will use throughout their careers. Together we will examine the complexity of what constitutes a "fishery" and better understand the factors that have led some fisheries to collapse and others to persist. In addition to lectures, students will read, discuss and write extensively and by doing so, can expect to gain better understanding of the "science of sustainability" with regards to 21st century fisheries in Alaska and beyond.
Lecture + Lab + Other: 3 + 0 + 0

FISH F192  Seminar  (a)
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

FISH F261  Introduction to Fisheries Utilization  (a)
3 Credits
Offered Fall
Application of harvesting, processing, preservation and marketing of Alaska's rich fisheries resources. Core course requirement for all B.A. students completing a minor in fisheries and for B.S. fisheries students. Course is offered via videoconference.
Prerequisites: BIOL F103X or CHEM F100X.
Lecture + Lab + Other: 3 + 0 + 0

FISH F288  Fish and Fisheries of Alaska  (a)
3 Credits
Offered Spring
This course will provide mid-level undergraduate students with an introduction to the biology and fisheries of Alaskan fish, shellfish and marine mammals, with important finfishes as the main focus of the course. First, we will examine important recreational, subsistence and commercial shellfish and finfish species. Next we will briefly cover fisheries economics and then turn our attention to lesser known freshwater and marine mammal fisheries in Alaska. The amount of coverage of each topic will vary depending on what is known about each group of organisms. Before enrolling students should have a basic understanding of biological and ecological concepts. This course is required of all fisheries students but should appeal to anyone interested in Alaska's fish and fisheries.
Prerequisites: FISH F110.
Lecture + Lab + Other: 3 + 0 + 0

FISH F290  Fisheries Internship  (a)
1 Credit
Under the supervision of a fisheries professional, students gain practical, professional experience through employment. Can be repeated up to four times, each for a different type of employment. The primary learning objectives for students are to gain professional experience in fisheries and refine career goals.
Prerequisites: Permission of the Fisheries Experiential Learning Coordinator/instructor; a student internship agreement form turned into the Experiential Learning Coordinator.
Recommended: STAT F200X.
Lecture + Lab + Other: 0 + 0 + 1-4

FISH F292  Seminar  (a)
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0
### FISH F301  Biology of Fishes
3 Credits
Offered Fall
A broad overview of the biological diversity of fishes presented from the comparative and organismal perspectives. The course examines the relationship between physical and biological properties of aquatic environments and the anatomy, physiology, behavior and geographical distribution of living fish lineages. Topics include fish evolution, biogeography, classification, gross and fine anatomy, sensory biology, and form-function relationships. Topics are presented to highlight essential concepts generally relevant in biology.  
**Prerequisites:** BIOL F116X; junior or senior standing.  
**Cross-listed with** BIOL F301.  
**Lecture + Lab + Other:** 3 + 3 + 0

### FISH F305  Invertebrate Zoology (n)
4 Credits
Offered Spring Even-numbered Years
Classification, structure, function, evolution and life histories of invertebrate animals.  
**Prerequisites:** BIOL F115X; BIOL F116X.  
**Crosslisted with** MSL F305; BIOL F305.  
**Lecture + Lab + Other:** 3 + 3 + 0

### FISH F315  Freshwater Fisheries Techniques
3 Credits
Offered MAYmester Even-numbered Years
Introduction to laboratory and field sampling methods in aquaculture, limnology, and fisheries biology. Emphasis will be placed on the proper care and use of laboratory equipment and field sampling gears, as well as the development of sampling protocols for collecting representative, non-biased fisheries and aquatic sciences data.  
**Prerequisites:** FISH F110; FISH F288; STAT F200X.  
**Lecture + Lab + Other:** 2 + 3 + 0

### FISH F336  Introduction to Aquaculture (a)
3 Credits
Offered Spring Odd-numbered Years
Contribution of Alaska's aquaculture industries including salmon ocean ranching, shellfish and kelp mariculture, contribute to the world's increasingly important aquaculture production. Survey of worldwide production, introduction to production systems, and familiarization with Alaska systems. Team taught by SFOS specialists and featuring invited lecturers, laboratory demonstrations and field trips. Note: This course is taught in Juneau.  
**Prerequisites:** BIOL F115X.  
**Lecture + Lab + Other:** 3 + 0 + 0

### FISH F340  Seafood Business
3 Credits
Offered Fall
Development and management of a successful seafood business from inception to operation. Practical application of business planning, obtaining financing, accounting, permitting, feasibility analysis, marketing, human resource management, and operational aspects of seafood harvesting and processing using case studies and guest lecturers from seafood industry.  
**Prerequisites:** FISH F261.  
**Lecture + Lab + Other:** 3 + 0 + 0

### FISH F411  Human Dimensions of Environmental Systems
3 Credits
Offered Fall
Study of human-environment relationships and applications to resource management. Draws on a range of social scientific approaches to the study of environmental systems, including: environmental anthropology, environmental history, historical ecology, political ecology, ethnoecology, property theory, and environmental justice.  
**Prerequisites:** COJO F131X or COJO F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; F200-level course in cultural anthropology, human geography, sociology, or political science.  
**Stacked with** FISH F611.  
**Lecture + Lab + Other:** 3 + 0 + 0

### FISH F412  Human-environment Research Methods
3 Credits
Offered Fall Odd-numbered Years
Basic overview of qualitative and quantitative social science methods for studying human-environment relationships. Introduction to research ethics, research design, data collection, data analysis and data reporting. Methods and data analysis techniques include interviews, text analysis, surveys, scales, cognitive anthropology and ethnoecology, social networks, behavioral observation and visual methods. Provides hands-on training in data collection and data analysis software.  
**Prerequisites:** COJO F131X or COJO F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; upper level standing.  
**Cross-listed with** ANTH F412.  
**Stacked with** FISH F613.  
**Lecture + Lab + Other:** 3 + 0 + 0

### FISH F413  Marine and Freshwater Conservation Biology
4 Credits
Offered Fall Odd-numbered Years
Conservation biology is an applied science that draws from multiple disciplines to address biodiversity loss, maintenance and restoration of threatened populations and habitats. This course will examine the theory and practice of conservation biology in aquatic ecosystems across genetic, population, community and landscape scales. Using case studies, students will examine causes and consequences of biodiversity loss, extinction risk and endangered species management and the human dimensions of conservation in the U.S. and worldwide.  
**Prerequisites:** junior or senior standing; a F200-level course in biological sciences or fisheries.  
**Stacked with** FISH F612.  
**Lecture + Lab + Other:** 4 + 0 + 0

### FISH F414  Field Methods in Marine Ecology and Fisheries
3 Credits
Offered Alternate MAYmester
A hands-on introduction to the methods used to study ecological patterns and processes in the marine environment. Class will consist of a series of group field exercises conducted in local marine habitats. These exercises will emphasize a variety of sampling methods for documenting patterns of distribution and abundance, experimental designs for testing hypotheses and statistical interpretation of results. These skills are fundamental to most basic and applied research in marine ecology and fisheries. Thus this course provides an essential foundation for a professional career in these areas.  
**Prerequisites:** FISH F101; BIOL F371.  
**Lecture + Lab + Other:** 13.3 + 20 + 0
FISH F421  Fisheries Population Dynamics
4 Credits
Offered Fall Odd-numbered Years
This course introduces basic ecological and fisheries stock assessment models. Through lectures, assignments and weekly computer lab, it provides a conceptual understanding of population dynamics relevant to fisheries and practice manipulating equations.
Prerequisites: STAT F200X.
Lecture + Lab + Other: 4 + 0 + 0
FISH F425  Fish Ecology
3 Credits
Offered Fall Odd-numbered Years
This course is an exploration of how fish interact with, and adapt to, their physical and biological environment, taught through the viewpoint that habitat diversity acts as a template for biological diversity within and among species. We will examine the ecology of major freshwater and marine habitats (with an emphasis on the former), as well as the potential threats to these habitats from human activity.
Prerequisites: FISH F110; BIOL F371.
Stacked with FISH F650.
Lecture + Lab + Other: 3 + 0 + 0
FISH F426  Behavioral Ecology of Fishes
3 Credits
Offered Spring Even-numbered Years
This course will provide upper-level undergraduate and graduate students with an advanced understanding of behavioral responses and adaptations of fishes in both freshwater and marine systems to natural and anthropogenic environmental variables. It should provide students another option to fulfill upper-level undergraduate and graduate level elective course work. Before enrolling, students should have a sound understanding of both ecological and biological concepts relating to fishes.
Prerequisites: BIOL F371 or FISH F301 or FISH F427.
Recommended: FISH F425; FISH F427.
Stacked with FISH F626.
Lecture + Lab + Other: 3 + 0 + 0
FISH F427  Ichthyology
4 Credits
Offered Spring
Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology and importance to man.
Prerequisites: BIOL F116X.
Cross-listed with BIOL F427.
Lecture + Lab + Other: 3 + 3 + 0
FISH F428  Physiological Ecology of Fishes
3 Credits
Offered Spring Odd-numbered Years
This course will provide upper-level undergraduate and graduate students with an advanced understanding of physiological responses and adaptations of fishes in both freshwater and marine systems to natural and anthropogenic environmental variables. It should provide students with another option to fulfill upper-level undergraduate and graduate level elective coursework. Before enrolling, students should have a sound understanding of both ecological and biological concepts relating to fish.
Prerequisites: FISH F301, BIOL F310, FISH F427 or BIOL F427.
Stacked with FISH F628.
Lecture + Lab + Other: 3 + 0 + 0
FISH F433  Pacific Salmon Life Histories
3 Credits
Offered Spring Even-numbered Years
This course provides an introduction to the life histories of Pacific salmon. We will explore variation in life history traits within and among species, as well as within and among populations, at each stage of the salmon life cycle. Life histories will be understood in evolutionary and ecological contexts. We will also discuss management and conservation of Pacific salmonid species throughout their range, but with focus on Alaska. This course is taught in Juneau.
Prerequisites: BIOL F115X, BIOL F116X.
Stacked with FISH F633.
Lecture + Lab + Other: 3 + 0 + 0
FISH F440  Oceanography for Fisheries
3 Credits
Offered Fall Even-numbered Years
Students examine how understanding the oceanographic processes that determine the distribution, recruitment, and abundance of marine vertebrates and invertebrates from global to local scales and from evolutionary time scales to daily scales supports the sustainable management of marine fisheries resources.
Prerequisites: CHEM F105X, PHYS F103X, FISH F288, STAT F200X.
Recommended: FISH F425.
Cross-listed with MSL F440.
Lecture + Lab + Other: 3 + 0 + 0
FISH F450  Practicum in Fisheries: Fisheries Observer Program
3 Credits
Offered As Demand Warrants
Practical experience as a fisheries biologist onboard an Alaska commercial fishing vessel doing independent work at sea as an agent for the National Marine Fisheries Service or the Alaska Department of Fish and Game. Simultaneous to credit, the student/observer will be under contract and receive reimbursement for deployment. May be repeated for additional credit during different deployments as observer.
Prerequisites: STAT F200X.
Lecture + Lab + Other: 0 + 1-12 + 0
FISH F487  Fisheries Management
3 Credits
Offered Spring
Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Application of quantitative methodologies for the assessment and manipulation of aquatic habitats, sport and commercial fish populations, and stock assessment are considered, as is the setting of appropriate goals and objectives for effective, science-based management.
Prerequisites: COJO F131X or COJO F141X; FISH F288; STAT F200X.
Stacked with FISH F687.
Lecture + Lab + Other: 3 + 0 + 0
Fisheries (FISH)

FISH F490 Experiential Learning: Fisheries Internship
1 Credit
Under the supervision of a faculty member and a fisheries professional, upper-division students gain professional experience through employment. Requirements are decided prior to enrollment based on a 3-way agreement between the employer, student, and faculty member, which contains learning objectives that reflect upper-division credit. Can be repeated up to 4 times, each for a different type of employment.
Prerequisites: Junior or senior standing plus permission of Faculty Sponsor and the Fisheries Experiential Learning Coordinator/instructor (the Coordinator can be a sponsor as well); signing of a student internship agreement form that contains learning objectives for the internship that reflects upper-division internship credit.
Recommended: FISH F315; STAT F200X; STAT F401.
Lecture + Lab + Other: 0 + 0 + 1-4

FISH F492 Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

FISH F492P Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

FISH F498 Senior Thesis Proposal
1-3 Credits
Students will complete the first part of a year-long, self-designed scholarly project that is the capstone of a student’s exemplary academic performance. For this component of senior thesis, the student will develop a proposal that will reflect a thorough understanding of the existing literature, study objectives and testable hypotheses, the methodology by which data will be collected through field and/or laboratory research, including data analyses, and a timeline by which the senior thesis will be completed. The student should also complete the collection of field and/or laboratory data and begin data analysis.
Prerequisites: Fisheries major with senior standing; a GPA of 3.2 or higher and permission of a Fisheries Division faculty mentor and the SFOS Internship Coordinator (the coordinator may also be a mentor); signing of a student internship agreement form that contains learning objectives for the internship project that reflects upper-division internship credit.
Recommended: FISH F315; STAT F200X; STAT F401.
Lecture + Lab + Other: 0 + 0 + 1-4

FISH F499 Fisheries Senior Thesis
2-4 Credits
Students will complete the second part of a year-long, self-designed scholarly project that is the capstone of a student’s exemplary academic performance. For this component of senior thesis, the student will complete analysis of field and/or laboratory data collected during FISH F498 and develop a research paper/manuscript that will interpret the study results and cast them within the context of the existing literature relevant to the study topic. Students will be expected to work with their senior thesis mentor to submit the manuscript for peer review to a scientific journal and will be required to present their study results as an oral or poster presentation.
Prerequisites: Fisheries major with senior standing; with a GPA of 3.2 or higher; and permission of a Fisheries Division faculty mentor and the SFOS Internship Coordinator (the coordinator may also be a mentor); FISH F498.
Recommended: FISH F315; STAT F401; STAT F402.
Lecture + Lab + Other: 0 + 0 + 2-4

FISH F601 Quantitative Fishery Science
3 Credits
Offered Spring Even-numbered Years
Lecture + Lab + Other: 2 + 3 + 0

FISH F604 Modern Applied Statistics for Fisheries
4 Credits
Offered Odd-numbered Years
Covers general statistical approaches to quantitative problems in marine science and fisheries with guidance on how to collect and organize data, how to select appropriate statistical methods and how to communicate results. A variety of advanced statistical methods for analyzing environmental data sets will be illustrated in theory and practice.
Prerequisites: STAT F200X; STAT F401; proficiency in computing with R.
Cross-listed with MSL F604.
Lecture + Lab + Other: 3 + 3 + 0

FISH F605 Communicating Science to the Public
2 Credits
Offered Spring Odd-numbered Years
In this course, students will gain practical skills in communicating their research to peers and public audiences. Short lectures, readings and discussion will focus on communication issues in environmental science and management and best practices for good oral and written communication. Throughout the semester, students will engage with professionals in science journalism, education and resource management. Students will gain direct experience in communicating science to public audiences through a group outreach event they will co-organize at the culmination of the course.
Prerequisites: Graduate standing in the sciences.
Lecture + Lab + Other: 2 + 0 + 0

FISH F611 Human Dimensions of Environmental Systems
3 Credits
Offered Fall
Study of human-environment relationships and applications to resource management. Draws on a range of social scientific approaches to the study of environmental systems, including: environmental anthropology, environmental history, historical ecology, political ecology, ethnoecology, property theory, and environmental justice.
Prerequisites: Graduate standing.
Stacked with FISH F411.
Lecture + Lab + Other: 3 + 0 + 0

FISH F612 Marine and Freshwater Conservation Biology
4 Credits
Offered Fall Odd-numbered Years
Basic overview of qualitative and quantitative social science methods for studying human-environment relationships. Introduction to research ethics, research design, data collection, data analysis and data reporting. Methods and data analysis techniques include interviews, text analysis, surveys, scales, cognitive anthropology and ethnoecology, social networks, behavioral observation, and visual methods. Provides hands-on training in data collection and data analysis software.
Prerequisites: graduate standing.
Stacked with FISH F413.
Lecture + Lab + Other: 4 + 0 + 0

FISH F613 Marine and Freshwater Conservation Biology Lab
3 Credits
Offered Fall Odd-numbered Years
Lecture + Lab + Other: 2 + 0 + 0
FISH F613  Human-Environment Research Methods  
3 Credits  
Offered Fall Odd-numbered Years  
Basic overview of qualitative and quantitative social science methods for studying human-environment relationships. Introduction to research ethics, research design, data collection, data analysis and data reporting. Methods and data analysis techniques include interviews, text analysis, surveys, scales, cognitive anthropology and ethnography, social networks, behavioral observation, and visual methods. Provides hands-on training in data collection and data analysis software. Stacked with FISH F412.  
Prerequisites: Graduate standing or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

FISH F621  Estimation of Fish Abundance  
3 Credits  
Offered Fall Even-numbered Years  
Estimation of abundance of fish and other aquatic populations, using mark-recapture, line-transect, catch-effort and change-in-ratio techniques. Computer lab work and homework from actual and simulated populations.  
Prerequisites: MATH F252X; STAT F401; familiarity with PCs including word processing and spreadsheets.  
Recommended: FISH F421; MATH F302; MATH F314.  
Lecture + Lab + Other: 2 + 2.5 + 0

FISH F622  Quantitative Fish Population Dynamics  
3 Credits  
Offered Spring Odd-numbered Years  
This course is taught in Juneau. Modeling fish population mortality, recruitment individual growth and fecundity. Models and assessment techniques for age- and length-structured populations. Biological reference points and management strategies derived from population and harvesting parameters. Computer lab work and homework with data from actual and simulated populations.  
Prerequisites: MATH F252X; STAT F401; Familiarity with PCs including word processing and spreadsheets.  
Recommended: FISH F421; MATH F302; MATH F314.  
Lecture + Lab + Other: 2 + 2.5 + 0

FISH F625  Population Dynamics of Vertebrates  
3 Credits  
Offered Spring Odd-numbered Years  
Sampling vertebrate populations, modeling their population dynamics and the implications for management. Focus will be on study design, model assumptions, estimation of population parameters and inference. State-of-the-art computer applications will be employed in laboratory exercises of actual and simulated data.  
Prerequisites: BIOL F371; STAT F401.  
Cross-listed with WLF F625.  
Lecture + Lab + Other: 2 + 3 + 0

FISH F626  Behavioral Ecology of Fishes  
3 Credits  
Offered Spring Even-numbered Years  
This course will provide upper-level undergraduate and graduate students with an advanced understanding of behavioral responses and adaptations of fishes in both freshwater and marine systems to natural and anthropogenic environmental variables. It should provide students another option to fulfill upper-level undergraduate and graduate level elective course work. Before enrolling, students should have a sound understanding of both ecological and biological concepts relating to fishes.  
Prerequisites: BIOL F371 or FISH F301 or FISH F427.  
Recommended: FISH F425 or FISH F427.  
Stacked with FISH F426.  
Lecture + Lab + Other: 3 + 0 + 0

FISH F627  Statistical Computing with R  
2 Credits  
Offered Fall, As Demand Warrants  
Using the free, open-source software R to teach computing, programming, and modeling concepts for the statistical computing of fisheries and biological data. Prepares students for other graduate-level, quantitative fisheries courses and covers exploratory statistical and graphical analyses, as well as computer-intensive methods such as bootstrapping and randomization tests.  
Prerequisites: STAT F200X, STAT F401, and proficiency with Excel.  
Cross-listed with MSL F627.  
Lecture + Lab + Other: 1 + 3 + 0

FISH F628  Physiological Ecology of Fishes  
3 Credits  
Offered Spring Even-numbered Years  
This course will provide upper-level undergraduate and graduate students with an advanced understanding of physiological responses and adaptations of fishes in both freshwater and marine systems to natural and anthropogenic environmental variables. It should provide students with another option to fulfill upper-level undergraduate and graduate level elective course work. Before enrolling, students should have a sound understanding of both ecological and biological concepts relating to fish.  
Prerequisites: FISH F301 or BIOL F310, FISH F427 or BIOL F427; graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

FISH F630  Natural Resource Modeling  
2 Credits  
Offered Spring Odd-numbered Years  
This course is taught in Juneau. A hands-on introduction to the techniques and issues involved in modeling natural resources. Students will complete an individual modeling project related to each student's graduate research.  
Prerequisites: FISH F421 and STAT F401.  
Lecture + Lab + Other: 1 + 3 + 0

FISH F631  Data Analysis in Community Ecology  
3 Credits  
Offered Spring Odd-numbered Years  
This course will provide an overview of statistical methods that have been specifically developed to aid our understanding and interpretation of the structure, abundance, and distribution of species and communities in relation to resources and the environment.  
Prerequisites: STAT F200X; STAT F401; FISH F627 (Statistical Computing with R) or familiarity with R, general ecology, graduate standing in fisheries.  
Cross-listed with MSL F631.  
Lecture + Lab + Other: 3 + 0 + 0
FISH F633  Pacific Salmon Life Histories
3 Credits
Offered Spring Even-numbered Years
This course provides an introduction to the life histories of Pacific salmon. We will explore variation in life history traits within and among species, as well as within and among populations, at each stage of the salmon life cycle. Life histories will be understood in evolutionary and ecological contexts. We will also discuss management and conservation of Pacific salmonid species throughout their range, but with focus on Alaska. This course is taught in Juneau.
Prerequisites: BIOL F115X; BIOL F116X.
Stacked with FISH F433.
Lecture + Lab + Other: 3 + 0 + 0

FISH F640  Management of Renewable Marine Resources
3 Credits
Offered Spring Even-numbered Years
Principles of fisheries management, along with case studies of successes and failures. Topics include management objectives, relationships of fished species to their environment, fishing methods, human dimensions, fishery data acquisition, harvest strategies, ecosystem effects of fishing, aquaculture and alternative management strategies, including ecosystem-based fishery management.
Prerequisites: FISH F427.
Recommended: FISH F487.
Lecture + Lab + Other: 3 + 0 + 0

FISH F641  Ecosystem-based Fisheries Management
2 Credits
Offered Spring Odd-numbered Years
This course examines the theory and practice of ecosystem-based fisheries management (EBFM). Topics include legal frameworks, principles, governance, approaches, scientific basis, management implementation and outcomes of EBFM. Emphasis is placed on Alaska with other illustrative examples from around the world.
Prerequisites: FISH F487; or FISH F640; or graduate standing.
Lecture + Lab + Other: 2 + 0 + 0

FISH F642  Bayesian Decision Theory for Resource Management
4 Credits
Offered Spring Even-numbered Years
Application of decision theory to problems in natural resources management. Students will learn to perform Bayesian calculations and uncomplicated decision analysis themselves.
Prerequisites: FISH F621 or FISH F630.
Cross-listed with STAT F642.
Lecture + Lab + Other: 2 + 2 + 0

FISH F645  Bioeconomic Modeling and Fisheries Management
3 Credits
Offered Spring Even-numbered Years
An introduction to analytic and computational models of discrete-time representations of bioeconomic systems, including comparative static and optimal control approaches to optimizing unitary and multiple criteria subject to deterministic and stochastic dynamic processes. Particular attention is given to bioeconomic models of optimal management of exploited populations of fish and shellfish.
Prerequisites: STAT F401; MATH F230X or MATH F251X; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

FISH F650  Fish Ecology
3 Credits
Offered Fall Odd-numbered Years
This course is an exploration of how fish interact with, and adapt to, their physical and biological environment, taught through the viewpoint that habitat diversity acts as a template for biological diversity within and among species. We will examine the ecology of major freshwater and marine habitats (with an emphasis on the former), as well as the potential threats to these habitats from human activity.
Prerequisites: Graduate standing.
Stacked with FISH F425.
Lecture + Lab + Other: 3 + 0 + 0

FISH F651  Fishery Genetics
4 Credits
Offered Spring Odd-numbered Years
This course is taught in Juneau. Application of genetics to fisheries. Focus on Alaska fisheries including introduction to the theory of electrophoresis, stock separation, population genetics and quantitative genetics.
Lecture + Lab + Other: 4 + 0 + 0

FISH F653  Zooplankton Ecology
3 Credits
Offered Fall As Demand Warrants
Survey of marine zooplankton including processes and variables which influence their production and dynamics. Emphasis on the northeast Pacific and Arctic Ocean zooplankton communities. Field and lab methods for sampling include fixing, preserving, subsampling, identifying and quantifying zooplankton collections. Laboratory techniques for culture of zooplankton include physiological measurements of bioenergetic parameters. Course is offered outside Fairbanks by video conference.
Prerequisites: MSL F650.
Cross-listed with MSL F653.
Lecture + Lab + Other: 3 + 0 + 0

FISH F654  Benthic Ecology
3 Credits
Offered Alternate Spring NOTE: This course is taught in Juneau and Fairbanks.
Ecology of marine benthos, from subtidal to hadal zone. Methods of collecting, sorting, narcotizing, preserving and analyzing benthic assemblages, including video analytical techniques from submersibles and ROVs. Hydrothermal vent and cold seep assemblages. Physiology/energetics of benthic organisms, including animal-sediment relationships, feeding, reproduction and growth. Depth, spatial and latitudinal distribution patterns.
Prerequisites: Invertebrate zoology course; marine biology course.
Cross-listed with MSL F654.
Lecture + Lab + Other: 3 + 0 + 0

FISH F654J  Benthic Ecology
3 Credits
Offered Spring Odd-numbered Years
Ecology of marine benthos, from subtidal to hadal zones. Methods of collecting, sorting, narcotizing, preserving and analyzing benthic assemblages, including video analytical techniques from submersibles and ROVs. Hydrothermal vent and cold seep assemblages. Physiology/energetics of benthic organisms, including animal-sediment relationships, feeding, reproduction and growth. Depth, spatial and latitudinal distribution patterns.
Prerequisites: Invertebrate zoology course; marine biology course.
Cross-listed with MSL F654.
Lecture + Lab + Other: 3 + 0 + 0
FISH F661  Seafood Processing and Preservation
3 Credits
Offered Spring
Positive and negative aspects of processing and preservation of
seafoods are discussed. Practical aspects of preservation are stressed
and topics include thermal processing (canning and pasteurization),
fish smoking, salting, drying, pickling, freezing, fermentation, natural
preservatives and packaging. Aspects of selected processing and
preservation techniques to be demonstrated in the FITC pilot plant.
Prerequisites: BIOL F342; CHEM F351.
Recommended: MATH F230X or MATH F253X.
Lecture + Lab + Other: 3 + 0 + 0

FISH F662  Seafood Composition and Analysis
3 Credits
Offered Fall
Major components of foods, their properties, analysis and interactions
during processing and preservation, the effect of processing on
functional and nutritive value, postmortem microbial and biochemical
changes especially proteins, lipids and carbohydrates. Role of minor
colleagues such as flavors, vitamins, toxins and carcinogens. This
course is offered via videoconference.
Prerequisites: BIOL F342; CHEM F351.
Lecture + Lab + Other: 3 + 0 + 0

FISH F665  Aquatic Entomology
2 Credits
Offered Fall Odd-numbered Years
Aquatic invertebrate taxonomy, mostly to the family level, and ecology.
Includes field trips to learn collecting techniques and habitats.
Prerequisites: Graduate standing; Students must be able to safely wade
in streams and wetlands.
Cross-listed with BIOL F665.
Lecture + Lab + Other: 1 + 3 + 0

FISH F670  Quantitative Analysis for Marine Policy Decisions
3 Credits
Offered Spring Even-numbered Years
An introduction to the practical application of mathematical
programming, operations research, simulation, cost-benefit analysis, cost
effectiveness analysis, regional impact assessment, economic valuation,
risk analysis, adaptive management and other decision theoretic tools
in preparation of regulatory documents required for the management of
living marine resources and for assessment of environmental damages.
Prerequisites: STAT F401; MATH F230X or MATH F251X; graduate
standing.
Lecture + Lab + Other: 3 + 0 + 0

FISH F672  Law and Fisheries
2 Credits
Offered Fall Even-numbered Years
This course introduces students to the key Federal, State and
International laws that govern fisheries in Alaska state waters and in
the US Exclusive Economic Zone off Alaska. In addition, the course
introduces students to seminal court rulings that have helped shape
those laws.
Prerequisites: graduate standing.
Lecture + Lab + Other: 2 + 0 + 0

FISH F674  Economic Development for Fish-dependent Communities
3 Credits
This course provides an introduction to the economic organization of
fishery-dependent communities in Alaska, tools for characterizing
community-scale economies, principles of economic development,
methods of measuring regional economic impacts of changes in access
to fisheries, and a review of policies intended to support the continuity
and development of Alaskan communities dependent on commercial
fisheries.
Prerequisites: STAT F401 or ECON F227.
Lecture + Lab + Other: 3 + 0 + 0

FISH F675  Political Ecology
3 Credits
Offered Fall Even-numbered Years
Introduction to the field of political ecology. Topics include the
sociology of scientific knowledge, traditional and local ecological
knowledge, politics of resource management, processes of enclosure and
privatization, environmental values, conservation, environmental justice,
and colonialism and economic development.
Prerequisites: Graduate standing.
Cross-listed with ANTH F675.
Lecture + Lab + Other: 3 + 0 + 0

FISH F676  Aquatic Food Web Ecology
3 Credits
Offered Fall Even-numbered Years
This course will examine theoretical and applied aspects of aquatic food
web ecology, from the ecological processes that give rise to patterns
in aquatic communities to the incorporation of trophic interactions into
ecosystem-based management. Lectures and discussion will focus on
ecological theory and case studies. Lab exercises will introduce empirical
and modeling approaches for studying food web interactions. Proficiency
with Excel and basic statistics is preferred.
Prerequisites: FISH F425.
Cross-listed with MSL F676.
Lecture + Lab + Other: 2 + 3 + 0

FISH F680  Marine Sustainability Internship
2 Credits
Offered Fall
Internship program in marine ecosystem sustainability to broaden
students’ interdisciplinary training, develop new research tools, build
expertise outside their home discipline, gain exposure to careers, and
gain a unique perspective on research problems. Internships are for a
minimum of 8 weeks and take place during the summer. In the autumn
students report on and meet to discuss their internship experiences.
Prerequisites: MSL F652.
Cross-listed with ANTH F680 and MSL F680.
Lecture + Lab + Other: 0 + 0 + 5-16

FISH F681  The North Pacific Fishery Management Council: A Case
Study
2 Credits
Offered Summer
This two-week intensive course provides immersion into the scientific
and policy basis for fisheries management in Alaska. Students receive
two days of classroom instruction, review current management issues
and witness the decision-making process by attending a North Pacific
Fishery Management Council Meeting. Learning is enhanced by
discussions with diverse stakeholders and field trips.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 1 + 0 + 1
FISH F682  Field Course in Salmon Management  
4 Credits  
Offered Summer Odd-numbered Years  
A hands-on study of salmon management, with participation of harvesters, processors, managers and scientists. Students will track the return of salmon to Bristol Bay and estimate the total return as the runs develop. Consists of a combination of lectures, computer laboratories and field experience in data collection.  
Prerequisites: Permission of instructor.  
Lecture + Lab + Other: 3 + 3 + 0

FISH F687  Fisheries Management  
(0, W, n)  
3 Credits  
Offered Spring  
Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Application of quantitative methodologies for the assessment and manipulation of aquatic habitats, sport and commercial fish populations, and stock assessment are considered, as is the setting of appropriate goals and objectives for effective, science-based management.  
Prerequisites: graduate standing.  
Stacked with FISH F487.  
Lecture + Lab + Other: 3 + 0 + 0

FISH F692  Seminar  
0.5-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

FISH F692A  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

FISH F692P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0

FISH F698  Non-thesis Research/Project  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0

FIS F451  Foreign Language Teaching Practicum  
3 Credits  
Offered Fall  
Methodology workshop for the advanced second language student. Includes language acquisition and pedagogy and employment of these techniques in a lower level language classroom under the supervision of a classroom teacher. Enrollment subject to available classroom placement.  
Prerequisites: Completion of FREN F302 or SPAN F302 or RUSS F302 language course.  
Lecture + Lab + Other: 2 + 0 + 3-5

French (FREN)  

FREN F101X  Elementary French I  
(h)  
5 Credits  
Offered Fall  
Introduction to the French language and culture. Development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 5 + 0 + 0

FREN F102X  Elementary French II  
(h)  
5 Credits  
Offered Spring  
Introduction to the French language and culture. Development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.  
Prerequisites: FREN F101X.  
Attributes: UAF GER Humanities Req  
Lecture + Lab + Other: 5 + 0 + 0

FREN F201  Revision/Early Intermediate French  
(h)  
3 Credits  
Offered Fall  
Revision of fundamental French skills via French-language films. Designed for students with previous exposure to French.  
Lecture + Lab + Other: 3 + 0 + 0

FREN F202  Intermediate French II  
(h)  
3 Credits  
Offered Spring  
Increasing emphasis on reading ability and cultural material. Conducted in French.  
Prerequisites: FREN F201.  
Lecture + Lab + Other: 3 + 0 + 0

FREN F203  Conversational French II  
(h)  
3 Credits  
Offered As Demand Warrants  
Oral skills improvement. Includes group work, presentations, skits, discussions and vocabulary to improve speaking on specific topics. Does not satisfy core curriculum or foreign language major requirements.  
Prerequisites: FREN F102X.  
Lecture + Lab + Other: 3 + 0 + 0

Foreign Languages (FL)  

FL F200X  World Literature  
(h)  
3 Credits  
Introduction to critical reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, story telling and drama. Students will gain an understanding of cultural differences and universals in texts from American, American minority, Western European and non-Western sources. Specific content to be announced at time of registration. Course may be repeated for credit when content varies.  
Prerequisites: WRTG F111X, placement in WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing.  
Cross-listed with ENGL F200X.  
Attributes: UAF Core World Literatures, UAF GER Humanities Req  
Lecture + Lab + Other: 3 + 0 + 0

FL F451  Foreign Language Teaching Practicum  
3 Credits  
Offered Fall  
Methodology workshop for the advanced second language student. Includes language acquisition and pedagogy and employment of these techniques in a lower level language classroom under the supervision of a classroom teacher. Enrollment subject to available classroom placement.  
Prerequisites: Completion of FREN F302 or SPAN F302 or RUSS F302 language course.  
Lecture + Lab + Other: 2 + 0 + 3-5
GENR F201  Academic Recovery  
3 Credits  
This course helps students who are facing academic challenges to identify strengths, weaknesses and goals through self-exploration and the creation of a project that involves building campus relationships and the development of research and presentation skills. Enrollment is highly encouraged for students placed on academic probation or disqualification.  
Lecture + Lab + Other: 3 + 0 + 0

GENR F340  Peer Advisor Training  
1 Credit  
Offered Spring  
Emphasis on developing skills needed to assist exploratory/undecided students with their academic planning and decision making. Topics include resource referral, communication/active listening, academic and career planning, time and stress management, group dynamics, and values clarification.  
Prerequisites: Sophomore standing; application.  
Lecture + Lab + Other: 1 + 0 + 0

GENR F342  Peer Advising Practicum  
1-3 Credits  
Supervised peer advising experience (both individually and paired with faculty member) in the Academic Advising Center or appropriate department, allowing for application of theory and skills gained in HMSV F340. Course may be repeated once for credit.  
Prerequisites: HMSV F340.  
Lecture + Lab + Other: 0 + 0 + 0

Geography (GEOG)  
GEOG F101X  Expedition Earth: Introduction to Geography  
(s)  
3 Credits  
Introduction to essential concepts and approaches of geographic study. Explores physical, political, economic and cultural geography of major world culture regions. Examines each region in relation to others, and in context of global economic, political and environmental change.  
Attributes: UAF GER Social Sciences Req  
Lecture + Lab + Other: 3 + 0 + 0

GEOG F111X  Earth and Environment: Elements of Physical Geography  
(n)  
4 Credits  
Offered Fall  
This course explores the processes that create and shape Earth's physical environment. A global systems approach will be used to describe elements of, and interactions between, the atmosphere, hydrosphere, lithosphere and biosphere. A review and application of modern mapping techniques including GIS and GPS will be covered. The topic of global change serves as a capstone topic that integrates course concepts allowing for a comprehensive understanding of Earth surface processes. Lab section includes hands-on activities to reinforce lecture material and three field trips. Special lab fees apply.  
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.  
Attributes: UAF GER Natural Science Req  
Lecture + Lab + Other: 3 + 3 + 0

FREN F301  Advanced French  
(O, h)  
3 Credits  
Offered Fall  
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in French.  
Prerequisites: COJO F131X or COJO F141X; FREN F202.  
Lecture + Lab + Other: 3 + 0 + 0

FREN F302  Advanced French  
(O, h)  
3 Credits  
Offered Spring  
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in French.  
Prerequisites: COJO F131X or COJO F141X; FREN F301.  
Lecture + Lab + Other: 3 + 0 + 0

FREN F431  Studies in the Culture of the French Speaking World  
(W, h)  
3 Credits  
Offered Fall Odd-numbered Years  
Intensive study of selected aspects of the culture of the French-speaking world. Course may be repeated for credit if topic varies.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F302; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

FREN F432  Studies of French Literature  
(W, h)  
3 Credits  
Offered Fall Even-numbered Years  
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Course may be repeated for credit if topic varies.  
Prerequisites: WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F302; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

FREN F433  Studies in French and European Cinema  
(h)  
3 Credits  
Offered Spring  
The course discusses the evolution of French and European cinema in historical and artistic contents.  
Prerequisites: ENGL F217X or FLPA F217X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; FREN F301 or FREN F302.  
Cross-listed with FLPA F433.  
Lecture + Lab + Other: 2 + 2 + 0

General Studies (GENR)  
GENR F201  Academic Recovery  
3 Credits  
This course helps students who are facing academic challenges to identify strengths, weaknesses and goals through self-exploration and the creation of a project that involves building campus relationships and the development of research and presentation skills. Enrollment is highly encouraged for students placed on academic probation or disqualification.  
Lecture + Lab + Other: 3 + 0 + 0
GEOG F202  Natural Disasters
3 Credits
Offered Spring Odd-numbered Years
Natural disasters are usually the result of the build up and sudden release of energy in the solid earth, atmosphere, or biosphere. Natural "events" typically become disasters when intensive human activity alters the energy dynamics involved, or when the event endangers human life, property, or livelihood. This course examines the natural physical processes that affect the human environment in catastrophic ways. Case studies from around the world, will allow the examination of the complex factors that lead to natural disasters.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F203  World Economic Geography (s)
3 Credits
Offered As Demand Warrants
Study of the world's major economic activities: their physical and cultural bases, spatial growth and distribution patterns, and their significance in interregional and international development.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F207  Research Methods and Statistics in Geography
3 Credits
Offered Spring Odd-numbered Years
Introduction to basic data collection and analysis techniques used in geographic research. Explores a variety of qualitative and quantitative geographic research methods. Includes research design, real-world field-work issues, and hands-on use of tools and computer methods for analysis and visual display of spatial data. Students will gain an appreciation of the wide array of research methods and learn to critically interpret results and conclusions from both quantitative and qualitative perspectives.
Prerequisites: Placement in MATH F113X or MATH F151X.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F222  Fundamentals of Geospatial Sciences
3 Credits
Offered As Demand Warrants
This course is an introduction to the principles and applications of geospatial science (remote sensing, GIS and GPS). Fundamental concepts include electromagnetic radiations, map projections, basic computer science, data formats, map-reading and map-making, etc. Practical exercises include field data collections using GPS, photo-interpretation using image processing and GIS software packages.
Prerequisites: GEOG F111X or GEOS F101X.
Cross-listed with GEOS F222.
Lecture + Lab + Other: 2.5 + 1.5 + 0

GEOG F300  Internship in Geography
1-3 Credits
Offered As Demand Warrants
Supervised pre-professional experience in a business or agency (public or private). Open to students majoring or minoring in geography only. Course may be repeated for credit up to a maximum of 6 credits.
Prerequisites: GEOG F101X; junior standing with 3.0 GPA; an approved internship plan.
Lecture + Lab + Other: 0 + 0 + 3-10

GEOG F302  Geography of Alaska (s, a)
3 Credits
Regional, physical and economic geography of Alaska. Special consideration of the state's renewable and nonrenewable resources and of plans for their wise use. Frequent class study of representative maps and visual materials.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F303  Geography of United States and Canada (s, a)
3 Credits
Offered Fall Even-numbered Years
In-depth examination of the natural, political, cultural, and economic characteristics of the U.S. and Canada and their major sub-regions. Explores contrasts in U.S. and Canadian historical, cultural and political geography; sources of national identity; and interactions with aboriginal peoples. Includes economic and political relationships between the two countries, and the role each has played in current and historical world affairs.
Prerequisites: An introductory geography course or background in United States or Canadian history, social science, or cultures.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F305  Geography of Europe (W, s)
3 Credits
Offered Spring Even-numbered Years
In-depth examination of the natural, political, cultural and economic characteristics of Europe and its major sub-regions. Explores current political and economic transformations, historical and contemporary world influences, and issues of nationalism and identity.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; an introductory geography course or background in European history, social science, or culture.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F306  Geography of Russia (s, a)
3 Credits
Offered Spring Even-numbered Years
Examines the processes that shape the places, regions and landscapes of Russia and the countries of the former Soviet Union. Explores the influence of Northern Eurasia's physical geography on Russia's social, political and cultural development; Russia's role in twenty-first century geopolitical and economic affairs; Russia's conflicting spatial identities as expressed through art, literature, architecture and political discourse; and environmental attitudes and practices during the Imperial, Soviet and post-Soviet periods.
Prerequisites: GEOG F101X or HIST F100X; or a course in Russian history or culture.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F307  Weather and Climate (n, a)
3 Credits
Offered Spring
Weather systems and climate classification. Emphasis on weather system processes, measuring weather variables and physical processes of the atmosphere.
Prerequisites: GEOG F111X.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F309  Digital Cartography and Geovisualization (s)
4 Credits
Offered Spring Odd-numbered Years
The concepts of map design, layout and presentation to effectively visualize and communicate complex spatial data.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 3 + 3 + 0
GEOG F311  Geography of Asia  (W, s)  
3 Credits 
Offered Spring Odd-numbered Years 
Examines the natural, political, cultural, and economic characteristics of 
China, Japan, India-Pakistan, Southeast Asia, and the Asiatic countries of 
the Middle East. Explores historical and current political and economic 
threats, natural processes, and contemporary world influences, and 
foundations of regional political, economic, and military conflicts. 
Prerequisites: WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or 
WRTG F214X; an introductory geography course or background in Asian 
history, social science, or culture. 
Lecture + Lab + Other: 3 + 0 + 0 

GEOG F312  People, Places and Environment: Principles of Human 
Geography  (s)  
3 Credits 
Offered Fall 
Examines how human activity manifests itself on the earth’s surface 
through the geographic lenses of ethnicity, politics, industry, language, 
religion, and demographics. Explores spatial patterns, relationships 
and contrasts between places, origin and diffusion of traits, and human 
interactions with the environment. 
Prerequisites: GEOG F101X. 
Lecture + Lab + Other: 3 + 0 + 0 

GEOG F338  Introduction to Geographic Information Systems  
3 Credits 
Offered Fall 
Geographic data concepts including mapping systems, data sources, 
editing data, GIS analysis and computer mapping. Introduction to global 
positioning systems. GIS applications in natural resources management. 
Prerequisites: Knowledge of PCs or Unix workstations desirable. 
Cross-listed with NRM F338. 
Lecture + Lab + Other: 2 + 3 + 0 

GEOG F339  Maps and Landscape Analysis  (n, n)  
4 Credits 
Offered Spring Odd-numbered Years 
This course will build student knowledge and practical experience 
regarding the visualization and mapping of landform evolution in 
response to Earth surface processes. A semester long research project 
will allow students to gain experience in the collection and use of a 
variety of datasets and equipment used in landscape analysis including 
ground penetrating radar, real-time-kinematic GPS, Drones and GIS. 
Overnight field trip required. Special fees apply. 
Prerequisites: GEOG F111X; GEOS F304. 
Cross-listed with GEOS F339. 
Lecture + Lab + Other: 3 + 3 + 0 

GEOG F405  Political Geography  (s)  
3 Credits 
Offered As Demand Warrants 
Geographical analysis of the evolution, structure, internal coherence and 
sources of strength of individual nation states, with emphasis on nations 
of the Pacific realm and Arctic periphery. Consideration of regional blocs, 
spheres of influence and potential for international cooperation. 
Prerequisites: GEOG F101X. 
Lecture + Lab + Other: 3 + 0 + 0 

GEOG F410  Geography of the Pacific Rim  
3 Credits 
Offered Fall Odd-numbered Years 
Examines the physical and human geography of the Pacific Rim. Will 
employ both a global and topical approach and include aspects of 
environmental, historic, economic, social, and political issues. Regional 
studies on physical and human geographic attributes of selected 
countries will be analyzed and compared. 
Prerequisites: GEOG F101X; GEOG F111X. 
Lecture + Lab + Other: 3 + 0 + 0 

GEOG F412  Geography of Climate and Environmental Change  (a)  
3 Credits 
Offered Fall 
Serves as a "synthesis" breadth course focusing on the geography of 
climate and environmental change. The major concepts of global climate 
processes and climate change will be reviewed on multiple time scales. 
The impacts of natural and anthropogenic environmental change will be 
examined through selected case studies and readings (e.g. permafrost, 
invasive species, sea ice, fire, urbanization). 
Prerequisites: GEOG F307 or ATM F101X or ATM F401. 
Lecture + Lab + Other: 3 + 0 + 0 

GEOG F418  Biogeography  (a)  
3 Credits 
Offered Fall 
This course explores the geography of life by examining linkages between 
climate, geomorphology, and ecological communities with emphasis on 
the biogeography of sub-Arctic, polar and alpine regions. 
Prerequisites: NRM F277 or BIOL F371; junior/senior standing. 
Cross-listed with BIOL F418. 
Stacked with GEOG F618; BIOL F618. 
Lecture + Lab + Other: 3 + 0 + 0 

GEOG F420  Geopolitics of Energy  (s)  
3 Credits 
Offered Spring Even-numbered Years 
Examines the impacts that energy resource exploration, development, 
production, and transportation have on the internal politics of various 
countries in the world, and on international economic and political 
relationships. Explores the cultural, political, economic, physical, and 
and historical underpinnings of contemporary geopolitical events involving 
energy resources, and explores possible future scenarios. 
Prerequisites: Any of the following courses: GEOG F101X; GEOG F312; 
GEOG F405; NRM F101; NRM F403; PS F201X; PS F221X; PS F304; 
PS F323; ECON F235X; ECON F335; ECON F439; ECON F463; junior 
standing. 
Recommended: GEOG F101X. 
Lecture + Lab + Other: 3 + 0 + 0 

GEOG F427  Polar Geography  (s, a)  
3 Credits 
Offered Spring Odd-numbered Years 
Comparative physical, cultural, political and economic geography of the 
Circumpolar North and Antarctic regions. Special attention to Arctic 
natural resource development, climate change in both polar regions and 
polar geopolitics. 
Prerequisites: GEOG F101X or GEOG F111X. 
Cross-listed with ACNS F427. 
Stacked with GEOG F627; ACNS F627. 
Lecture + Lab + Other: 3 + 0 + 0
GEOG F430  Google Earth and Neogeography  
3 Credits  
Offered Spring  

Neogeography describes a new generation of primarily web-based mapping techniques and technologies. This course teaches advanced use of some of the latest neogeography tools, such as Google Earth, Maps Engine and Earth Engine. The skills and techniques learned will be applicable in academic, government and industry settings as a way to produce dynamic visualizations from any dataset with a geospatial component, for purposes of data presentation, analysis and research.  
Prerequisites: junior standing with completed course work in geographic methods (GEOG F309; GEOG F339; GEOS F304; GEOG F422; GEOS F458; NRM F338; NRM F435).  
Lecture + Lab + Other: 3 + 0 + 0  

GEOG F435  GIS Analysis  
4 Credits  
Offered Spring  

GIS analysis of natural resources including spatial query, attribute query, vector, grid, image, topographic and network analysis techniques.  
Cross-listed with NRM F435.  
Lecture + Lab + Other: 3 + 3 + 0  

GEOG F454  Comparative Farming and Sustainable Food Systems  
3 Credits  
Offered Fall  

Principles of food systems geography and food security. Cross-cultural examination of dietary traditions, poverty, hunger, equity and food access and distribution. Comparison of multiple varieties and scales of agricultural systems in the context of social, ecological and economic sustainability. Considers Alaskan and other high-latitude food systems, including country food, wild game harvest and rural to urban nutrition transition.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.  
Cross-listed with NRM F454 and CCS F454.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOG F460  The Dynamic Alaska Coastline  
3 Credits  
Offered Spring Even-numbered Years  

Alaska’s diverse coastal system provides abundant ecosystem services and globally important resources. This course provides an interdisciplinary perspective on the dynamic coastal landscape of Alaska from Southcentral to the Arctic, and delves into the driving geological, oceanographic and climate processes shaping Alaska’s past and present coastline. Through a semester long research projects students will learn how to measure and map coastal changes associated with natural and human perturbations. An overnight field trip will serve as an active learning opportunity to integrate course knowledge with hands-on field work.  
Prerequisites: Junior standing; GEOG F111X or GEOS F101X; CHEM F105X or PHYS F103X; NRM F338 or equivalent GIS coursework.  
Cross-listed with GEOS F460.  
Stacked with GEOG F660; GEOG F660.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOG F464  Wilderness Management  
3 Credits  
Offered Spring  

Wilderness ecology and land management practices on lands designated as wilderness. Plus, visitor management regimes are analyzed. Both national and international views of wilderness are presented.  
Prerequisites: A basic course in ecology; resource management.  
Cross-listed with NRM F464.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOG F478  Ice Age Alaska (a)  
3 Credits  

An overview of the paleoenvironments of Alaska including climate, glacier and biotic history including humans. Emphasis on events of the past that have left important legacies on present landscapes. The course begins with two weekend field trips and then surveys key literature describing Alaska’s ice-age history. The focus is on Alaska and the Yukon, but topics will range more widely into other parts of the Arctic and its adjacent seas.  
Prerequisites: Senior standing in anthropology, biological sciences, Earth science, geography, geoscience, or northern studies.  
Cross-listed with GEOS F478.  
Stacked with GEOG F678;GEOS F678.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOG F483  Research Design, Writing and Presentation Methods (O, W, n)  
3 Credits  
Offered Fall  

This course is designed as a capstone research and professional development course for geography, natural resources management and geoscience majors. Students will focus on designing an individual research project and proposal. This course will provide real world active learning assignments that seek to integrate the knowledge and skills gained through undergraduate work, and prepares students for graduate and professional level projects. The course will focus on scientific writing, and the oral, written and graphical presentation of data and research results.  
Prerequisites: COJO F131X or COJO F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.  
Cross-listed with GEOS F483.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOG F488  Geographic Assessment and Prediction of Natural Hazards  
3 Credits  
Offered Fall Even-numbered Years  

Integrate aspects of physical geography with the human dimension via the study of the assessment and prediction of natural hazards. Guest speakers, case studies, and applied practical exercises will help students transition from content-based courses to applying their knowledge in "real-world" situations, using geographic tools in remote sensing and GIS.  
Prerequisites: GEOG F111X.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOG F490  Geography Seminar (O, W, s)  
3 Credits  
Offered Spring  

Discussion of geographic thought including past, present and future directions of the discipline. Contributions of geography to science, philosophy and ethics integrated through detailed review of contemporary literature and research.  
Prerequisites: COJO F131X or COJO F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.  
Lecture + Lab + Other: 3 + 0 + 0
GEOG F618  Biogeography  (a)  
3 Credits  
Offered Fall  
This course explores the geography of life by examining linkages between climate, geomorphology, and ecological communities with emphasis on the biogeography of sub-Arctic, polar and alpine regions.  
Prerequisites: Graduate standing.  
Cross-listed with BIOL F618.  
Stacked with GEOG F418 and BIOL F418.  
Lecture + Lab + Other: 3 + 0 + 0

GEOG F627  Polar Geography  (a)  
3 Credits  
Offered Spring Odd-numbered Years  
Comparative physical, cultural, political and economic geography of the Circumpolar North and Antarctic regions. Special attention to Arctic natural resource development, climate change in both polar regions and polar geopolitics.  
Prerequisites: Graduate standing.  
Cross-listed with ACNS F627.  
Stacked with GEOG F427; ACNS F427.  
Lecture + Lab + Other: 3 + 0 + 0

GEOG F656  Sustainable Livelihoods and Community Well-being  
3 Credits  
Offered Fall  
Review the basic principles that govern the sustainability of systems and look at the cultural practices and individual behaviors that enhance or degrade sustainable livelihoods and community well-being. Emphasis is on understanding the historical context of ideas about sustainability, on understanding the nature and magnitude of the social, economic and ecological dimensions of contemporary change, and the "best practices" currently in place for communities to respond effectively to change.  
Prerequisites: Graduate standing.  
Cross-listed with NRM F656 and CCS F656.  
Lecture + Lab + Other: 3 + 0 + 0

GEOG F660  The Dynamic Alaska Coastline  
3 Credits  
Offered Spring Even-numbered Years  
Alaska's diverse coastal system provides abundant ecosystem services and globally important resources. This course provides an interdisciplinary perspective on the dynamic coastal landscape of Alaska from Southcentral to the Arctic, and delves into the driving geological, oceanographic and climate processes shaping Alaska's past and present coastline. Through a semester long research projects students will learn how to measure and map coastal changes associated with natural and human perturbations. An overnight field trip will serve as an active learning opportunity to integrate course knowledge with hands-on field work.  
Prerequisites: Graduate standing.  
Cross-listed with GEOS F660.  
Stacked with GEOG F460; GEOS F460.  
Lecture + Lab + Other: 3 + 0 + 0

GEOG F678  Ice Age Alaska  (a)  
3 Credits  
An overview of the paleoenviroments of Alaska including climate, glacier and biotic history including humans. Emphasis on events of the past that have left important legacies on present landscapes. The course begins with two weekend field trips and then surveys key literature describing Alaska's ice-age history. The focus is on Alaska and the Yukon, but topics will range more widely into other parts of the Arctic and its adjacent seas.  
Prerequisites: Graduate standing in anthropology, biological Sciences, Earth science, geography, geoscience, or northern studies.  
Cross-listed with GEOS F678.  
Stacked with GEOG F478; GEOS F478.  
Lecture + Lab + Other: 3 + 0 + 0

GEOG F692  Graduate Seminar  
1-3 Credits  
Topics in natural resources management and geography explored through readings, student presentations, group discussions and guest speakers.  
Prerequisites: Graduate standing.  
Cross-listed with NRM F692.  
Lecture + Lab + Other: 1-3 + 0 + 0

GEOG F699  Thesis  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 0

Geological Engineering (GE)

GE F101  Introduction to Geological Engineering  
1 Credit  
Offered Fall  
Multiple aspects of geological engineering as a profession; the area and scope of the field.  
Lecture + Lab + Other: 1 + 0 + 0

GE F261  General Geology for Engineers  
3 Credits  
Offered Spring  
Study of common rocks and minerals, landforms and erosion. Geologic materials and engineering application of geology.  
Prerequisites: MATH F151X; MATH F152X; Geology, science or engineering majors.  
Lecture + Lab + Other: 2 + 3 + 0

GE F322  Erosion Mechanics and Conservation  
3 Credits  
Offered Spring or As Demand Warrants  
Engineering mechanics of water and wind erosion processes, types of geologic or anthropogenic induced erosion, application of engineering principles for design, management and control of erosion and engineering analysis of conservation structures.  
Prerequisites: ES F341.  
Lecture + Lab + Other: 3 + 0 + 0

GE F365  Geological Materials Engineering  
3 Credits  
Offered Fall  
Identification and classification of soils, physical and mechanical properties of soil, interaction of soils with subsurface water, subsurface exploration and case studies with an emphasis on permafrost.  
Prerequisites: ES F208; GE F261.  
Lecture + Lab + Other: 2 + 3 + 0
GE F371  Remote Sensing for Engineering
3 Credits
Offered Spring
Applications of remote sensing to geological engineering problems. Introduction to digital satellite image processing with hands-on practice.
Prerequisites: PHYS F212X.
Lecture + Lab + Other: 2 + 3 + 0

GE F375  Principles of Engineering Geology and Terrain Analysis
3 Credits
Offered Fall
Evaluation of terrain characteristics using basic geomorphic and engineering principles. Alaskan applications are provided due consideration.
Prerequisites: GE F261.
Lecture + Lab + Other: 2 + 3 + 0

GE F376  GIS Applications in Geological and Environmental Engineering
3 Credits
Offered As Demand Warrants
Fundamentals, concepts and components of geographic information systems (GIS) in engineering design. Introduction to acquiring, manipulating and analyzing digital terrain data for geological engineering and environmental applications, and the assessment of mineral resources. NRM F338 Recommended.
Prerequisites: GE F261; GE F375.
Lecture + Lab + Other: 2 + 3 + 0

GE F381  Field Methods and Applied Design I  (W)
2 Credits
Offered Summer
Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; GE F261; GEOS F213; GEOS F214; GEOS F320; GEOS F314.
Lecture + Lab + Other: 0 + 9 + 0

GE F382  Field Methods and Applied Design II  (W)
4 Credits
Offered Summer
Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; GE F261; GEOS F213; GEOS F214; GEOS F320; GEOS F314.
Lecture + Lab + Other: 0 + 9 + 0

GE F384  Engineering Geology of Alaska  (a)
4 Credits
Offered Summer or As Demand Warrants
A survey of the geology of Alaska relevant to the definition of natural and human-induced geological engineering hazards, the evaluation of sources of and specifications for engineering materials, and the evaluation of engineering construction sites.
Prerequisites: Upper-division standing.
Lecture + Lab + Other: 3 + 1 + 2

GE F400  Geological Engineering Internship
1-3 Credits
Offered As Demand Warrants
Supervised work experience in engineering organizations. Assignments will be individually arranged with cooperating organizations from the private and public sectors. A report of activities must be completed and reviewed by the sponsoring organization. The report may be held in confidence at the request of the sponsoring organization.
Prerequisites: Upper-division standing.
Lecture + Lab + Other: 1-3 + 0 + 0

GE F405  Exploration Geophysics
3 Credits
Offered Fall
Theory and application of gravity, magnetic, electrical, electromagnetic, radioactive and seismic methods as used for geophysical exploration. Some field work.
Prerequisites: GE F375; MATH F251X; PHYS F211X.
Lecture + Lab + Other: 2 + 3 + 0

GE F420  Subsurface Hydrology
3 Credits
Offered Fall
Hydrologic, geologic and other factors controlling groundwater flow, occurrence, development, chemistry and contamination. Elementary groundwater flow theory. Interactions between surface-subsurface hydrologic systems. Hydraulic characteristics of earth materials, engineering problems and models related to subsurface fluids, and properties of water.
Prerequisites: GE F365; MATH F302; ES F341. Stacked with GE F610.
Lecture + Lab + Other: 2 + 3 + 0

GE F422  Soil Physics  (a)
3 Credits
Offered As Demand Warrants
Fundamentals of soil physics, including soil texture, structure, size distribution, and water retention characteristics; flow of water through saturated and unsaturated soil; soil temperature and heat flow; infiltration, runoff, and evaporation. Processes relevant to active layer dynamics and permafrosts are given due consideration.
Prerequisites: CHEM F105X, CHEM F106X.
Lecture + Lab + Other: 2 + 3 + 0

GE F430  Geomechanical Instrumentation
3 Credits
Offered As Demand Warrants
Measurement of groundwater pressure, ground deformation, stress and temperature as well as the planning of monitoring programs, instrument calibration, maintenance and installation, data collection, interpretation, and reporting. Case histories are used.
Prerequisites: ES F331; GE F261 or GEOS F101X.
Lecture + Lab + Other: 2 + 3 + 0

GE F435  Exploration Design
3 Credits
Offered Spring
Geologic, engineering and economic considerations applied to the design and development of mineral exploration programs.
Prerequisites: GEOS F314.
Lecture + Lab + Other: 3 + 0 + 0
GE F440  Slope Stability  
3 Credits  
Offered Fall  
Slope design for open pit mining and other excavations. Stability analysis by various methods and on-site measuring and monitoring techniques.  
Prerequisites: ES F331.  
Lecture + Lab + Other: 3 + 0 + 0

GE F441  Geohazard Analysis  
3 Credits  
Offered Fall  
Procedures and techniques to evaluate geological factors for geohazards, such as landslides, earthquakes, volcanoes, flooding, coastal hazards and permafrost-related problems.  
Prerequisites: GE F365.  
Lecture + Lab + Other: 3 + 0 + 0

GE F445  Design of Earth Dams and Embankments  
3 Credits  
Offered As Demand Warrants  
Preliminary planning for design and construction of dams, site selection, reservoir assessment, foundation and other building materials, procedure for design of earth dams, design of abutment and spillway, estimation of volume of earthworks and storage capacities, site preparation for construction, excavation, slope stability issues and other geological engineering assessments.  
Prerequisites: senior standing.  
Lecture + Lab + Other: 3 + 0 + 0

GE F480  Senior Design  (W)  
3 Credits  
Design factors and procedures for the solution of geological engineering problems. A design project is the focus of the course.  
Prerequisites: WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; senior standing in the geological engineering program with completion of GE F261; GE F365; GE F371; GE F375; GE F381; GE F382; GE F405; GE F420.  
Lecture + Lab + Other: 1 + 6 + 0

GE F610  Subsurface Hydrology  
3 Credits  
Offered Fall  
Hydrologic, geologic and other factors controlling groundwater flow, occurrence, development, chemistry and contamination. Elementary groundwater flow theory. Interactions between surface-subsurface hydrologic systems. Hydraulic characteristics of earth materials, engineering problems and models related to subsurface fluids, and properties of water.  
Prerequisites: Graduate standing in Engineering.  
Stacked with GE F420.  
Lecture + Lab + Other: 2 + 3 + 0

GE F620  Advanced Groundwater Hydrology  
3 Credits  
Offered Fall Odd-numbered Years or As Demand Warrants  
Study of groundwater hydrology with emphasis on solute and contaminant transport, chemical reaction and ion exchange, advection and diffusion and computer modeling.  
Prerequisites: GE F610; graduate standing.  
Lecture + Lab + Other: 2 + 3 + 0

GE F622  Advanced Soil Physics  (a)  
3 Credits  
Offered As Demand Warrants  
Fundamentals of soil physical processes, multiphase flow and transport in unsaturated porous media such as soils. Application of principles of unsaturated flow to geoenvironmental and geotechnical systems. Methods for characterization of hydraulic properties in relation to soil physical parameters in the context of geoenigineering problems of flow and stability. Non-isothermal flow in unsaturated soils and its impact on subsurface environment. Biogeochemical processes affecting soil and groundwater contamination. Unsaturated flow and transport modeling including heat transfer relevant to active layer dynamics and permafrost underlain soils in Alaska and other similar cold regions.  
Prerequisites: GE F610 and Graduate standing in Engineering.  
Lecture + Lab + Other: 3 + 0 + 0

GE F624  Stochastic Hydrology and Geohydrology  
3 Credits  
Offered As Demand Warrants  
Overview of the stochastic methods used to study and analyze hydrologic and geohyrdologic processes. Emphasis on modeling hydrologic processes using statistical methods and stochastic interplay of processes between surface and subsurface hydrology.  
Prerequisites: GE F620 and graduate standing in Engineering.  
Lecture + Lab + Other: 3 + 0 + 0

GE F626  Thermal Geotechnics  
3 Credits  
Offered As Demand Warrants  
Prerequisites: CE F326; CE F422.  
Cross-listed with CE F626.  
Lecture + Lab + Other: 3 + 0 + 0

GE F635  Advanced Geostatistical Applications  
3 Credits  
Offered Spring  
Introduction to the theory and application of geostatistics. Review of classical statistics, continuous and discrete distributions, hypothesis testing and global estimation. Presentation of fundamental geostatistical concepts including: variogram, estimation variance, block variance, kriging, geostatistical simulation. Emphasis on the practical application of geostatistical techniques.  
Prerequisites: MIN F408; graduate standing.  
Cross-listed with MIN F635.  
Lecture + Lab + Other: 2 + 3 + 0

GE F665  Advanced Geological Materials Engineering  
3 Credits  
Offered As Demand Warrants  
In-depth study of geological materials (aggregates—sand, gravel and crushed rock for construction purposes) exploration, evaluation, testing and production. Emphasis placed on geological materials used for construction in Arctic and sub-Arctic environments, economic analysis of pit and quarry operations and availability of materials in Alaska.  
Prerequisites: GE F365.  
Recommended: MIN F408.  
Lecture + Lab + Other: 3 + 0 + 0
GE F666  Advanced Engineering Geology  
3 Credits  
Offered Fall Odd-numbered Years  
The interaction between geology and engineering case histories.  
Prerequisites: GE F365; graduate standing.  
Lecture + Lab + Other: 2 + 3 + 0

GE F668  Tunneling Geotechniques  
3 Credits  
Offered Fall Even-numbered Years  
Tunnel design, case histories, student report.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GE F692  Graduate Seminar  
1 Credit  
Topics in geological engineering explored through talks, group discussions and guest speakers with a high level of student participation.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 1 + 0 + 0

GEOS F101X  The Dynamic Earth  
4 Credits  
An introduction to how the Earth works and the geophysical and geochemical basis for our understanding of the Earth, emphasizing Alaskan examples. A course theme is that the Earth is changing around us, at a variety of scales. In all laboratory exercises students collect, analyze and interpret data, including that generated by a variety of geochanical and geophysical tools. Includes at least one field exercise in the Fairbanks area and an opportunity to observe freshly-poured lava.  
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.  
Attributes: UAF GER Natural Science Req  
Lecture + Lab + Other: 3 + 3 + 0

GEOS F106X  Life in the Age of Dinosaurs  
(n)  
4 Credits  
Offered Spring Even-numbered Years  
Promote a broader understanding of deep time through an examination of life and environments during the Mesozoic, or "Age of Dinosaurs." Discussions and exercises will focus on major events and processes that shaped the physical environments of the Mesozoic, such as the formation and break up of continents, global climate, and changing sea levels. Building on this foundation, the course will examine the fossil record to learn what it reveals about the major patterns in the diversity of terrestrial and marine life. Special emphasis will be placed on the origin, extinction, and paleobiology of dinosaurs. Important groups of contemporary vertebrates and invertebrates, including marine reptiles, mammals, flying reptiles, and ammonites will also be examined. The rise of flowering plants and the importance of fossil floras in understanding Mesozoic climates will be explored. Labs will provide opportunities to examine and identify fossils and use them to reconstruct ancient environments.  
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.  
Attributes: UAF GER Natural Science Req  
Lecture + Lab + Other: 3 + 3 + 0

GEOS F112X  The History of Earth and Life  
(n)  
4 Credits  
Offered Spring  
Historical geologic interpretation, geologic time scale, stratigraphic record and interpretation. Sedimentation and plate tectonics, fossil record and utilization, biostratigraphy, and geologic evolution of the North American continent. Lab examination of fossils, interpretation of geologic maps and stratigraphic columns.  
Prerequisites: GEOS F101X; placement in WRTG F111X; placement in DEVM F105.  
Attributes: UAF GER Natural Science Req  
Lecture + Lab + Other: 3 + 3 + 0

GEOS F120X  Glaciers, Earthquakes and Volcanoes: Past, Present and Future  
(n)  
4 Credits  
A survey course for the nonspecialist on the causes, effects, measurements and prediction of glaciers, earthquakes and volcanoes.  
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.  
Attributes: UAF GER Natural Science Req  
Lecture + Lab + Other: 3 + 3 + 0

GEOS F190  The Geology of Wine  
2 Credits  
Offered Spring Even-numbered Years  
This course explores the relationship between geology, climate, and viticulture. Aspects of geology that influence landscape, soil development and climate are evaluated in reference to their effects on wine-growing regions. The geology, tectonic setting, soil and climate of individual wine-growing areas will be explored through lectures, discussions, class projects/presentations, and lab wine tastings.  
Prerequisites: Student must be 21 years of age to enroll.  
Lecture + Lab + Other: 1.5 + 0.5 + 0

GEOS F192  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0
GEOS F212  Geology of Alaska  (n, a)  
3 Credits  
Offered As Demand Warrants  
Modern geologic processes in Alaska as a basis for understanding past 
geologic evolution of the region. The origin and recovery of Alaska's 
petroleum and mineral resources will be discussed. For non-majors.  
**Prerequisites:** GEOS F101X.  
**Lecture + Lab + Other:** 3 + 0 + 0

GEOS F213  Mineralogy  (n)  
4 Credits  
Offered Fall  
Mineral chemistry, atomic structure, elementary crystallography, 
optical crystallography and descriptive and determinative mineralogy.  
Instrumental determinative techniques (x-ray diffraction, petrographic 
microscope).  
**Prerequisites:** MATH F151X (may be taken concurrently); CHEM F105X;  
GEOS F101X.  
**Lecture + Lab + Other:** 2 + 6 + 0

GEOS F214  Petrology and Petrography  (n)  
4 Credits  
Offered Spring  
Origin, occurrence and classification of igneous and metamorphic 
rocks. Laboratory work involves hand lens identification and thin section 
examination of representative rocks.  
**Prerequisites:** GEOS F213.  
**Lecture + Lab + Other:** 2 + 6 + 0

GEOS F222  Fundamentals of Geospatial Science  
3 Credits  
Offered As Demand Warrants  
This course is an introduction to the principles and applications of 
geospatial science (remote sensing, GIS and GPS). Fundamental 
concepts include electromagnetic radiations, map projections, basic 
computer science, data formats, map-reading and map-making, etc.  
Practical exercises include field data collections using GPS, photo-
interpretation using image processing and GIS software packages.  
**Prerequisites:** GEOG F111X or GEOS F101X.  
**Cross-listed with** GEOG F222.  
**Lecture + Lab + Other:** 2.5 + 1.5 + 0

GEOS F225  Field and Computer Methods in Geology  (n)  
2 Credits  
Basic field methods, including field notes, topographic maps, 
measurement of structural elements, field safety, illustration, field 
mapping, and the use of GPS for field work are discussed and practiced.  
Use of computers for processing geologic field data and analytical 
data, and integration of field data into a simple Geographic Information 
System. Computers are used for the production of reports and technical 
illustration. This course will fulfill the department requirement for 
computer literacy.  
**Prerequisites:** GEOS F214 or GEOS F262 (may be taken concurrently).  
**Lecture + Lab + Other:** 1 + 3 + 0

GEOS F252  Volcanism and Active Geology of the Island of Hawai‘i  
2 Credits  
Offered WINTERmester  
A field-based course introducing students to the volcanism and active 
geology of the island of Hawai‘i, and by extension, other oceanic islands.  
Topics include physical features of the volcanoes, plate tectonics and 
the origin of volcanism, and the development and "life cycle" of oceanic 
Islands. Students cannot take both GEOS F252 and GEOS F352 for credit.  
**Prerequisites:** GEOS F101X, GEOS F120X or GE F261.  
**Stacked with** GEOS F352.  
**Lecture + Lab + Other:** 7.5 + 25 + 0

GEOS F262  Rocks and Minerals  
3 Credits  
Offered Fall Even-numbered Years  
Physical properties of minerals and rocks, classification, mode of 
occurrence and economic applications. Labs on recognition and 
measurement of physical properties. Course may not be used to satisfy 
degree requirements in geology or geological engineering.  
**Prerequisites:** GE F261, GEOS F101X.  
**Lecture + Lab + Other:** 2 + 3 + 0

GEOS F292  Seminar  
1-6 Credits  
**Lecture + Lab + Other:** 1-6 + 0 + 0

GEOS F292P  Seminar  
1-6 Credits  
**Lecture + Lab + Other:** 1-6 + 0 + 0

GEOS F304  Geomorphology  (n)  
3 Credits  
Offered Fall  
Surface features of the Earth and the processes which create or modify 
them. Application to Quaternary history, environmental science and 
related fields. Laboratory examination of topographic maps and aerial 
photographs, introduction to geomorphic measurements.  
**Prerequisites:** GEOS F101X.  
**Lecture + Lab + Other:** 3 + 0 + 0

GEOS F309  Tectonics  (W)  
3 Credits  
Offered Fall  
In-depth exploration of the theory of Plate Tectonics including plate 
boundary interactions—which trigger volcanoes and earthquakes, 
form mountain belts and oceans—via geochemistry, sedimentology,  
geophysics and structure. Understanding the creation and evolution of 
the lithosphere and mantle, how we detect tectonic processes and how 
present tectonic environments help reconstruct ancient crustal events.  
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X;  
GEOS F112X; GEOS F214 or GEOS F262 (either may be taken 
concurrently).  
**Lecture + Lab + Other:** 3 + 0 + 0
GEOS F314  Structural Geology  (n)
4 Credits
Offered Spring
Introductory overview of how rocks are deformed, types of geological structures including folds, faults and penetrative fabrics, and the associations of structures characteristic of different tectonic settings. Provides background in structural geology. Emphasis in the laboratory on examples and techniques that are broadly applicable in geology, especially the interpretation of geologic maps.
Prerequisites: GEOS F322 or concurrent enrollment in GEOS F214; MATH F152X; PHYS F103X or PHYS F211X.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F315  Paleobiology and Paleontology  (W, n)
4 Credits
Offered Fall
Survey of the history of life on Earth as represented in the fossil record. Contribution of paleontology to the study of evolution; past environments and paleogeography; biostratigraphically important invertebrate fossil groups and their temporal ranges; evolution of terrestrial flora and fauna; current issues in paleontology. Emphasis on recognition of major fossil groups and paleontological problem solving in labs and assignments.
Prerequisites: BIOL F103X or BIOL F115X or GEOS F112X; WRTG F211X; WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F317  Paleontological Research and Laboratory Methods  (O)
2 Credits
Offered Spring Even-numbered Years
Introduction to the research methods in paleontology. This course covers the fundamentals of fossil preparation, digital techniques for imaging and analyzing paleontological data, and discusses the current theory and practice of curation of fossil material in a museum setting. Common techniques for presenting research results to a scientific and public audience are also covered, with an emphasis on oral presentations. Labs emphasize practical experiences in the methods and presentation of research.
Prerequisites: GEOS F101X and GEOS F112X.
Lecture + Lab + Other: 1 + 3 + 0

GEOS F320  Sedimentology for Geological Engineers  
3 Credits
Origin, classification, composition, transportation, deposition and diagenesis of sediments. Emphasis on sedimentary processes, sedimentary petrology and interpretation of ancient sedimentary rocks. Laboratory covers identification and description of hand specimens as well as techniques of textural and compositional analysis. Not intended for geoscience majors and does not substitute for GEOS F322. Special fees apply.
Corequisites: GEOS F213.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F322  Stratigraphy and Sedimentation  (n)
4 Credits
Offered Fall
Analysis and interpretation of sedimentary rocks in stratigraphic successions based on comparison with features found in modern depositional environments. Application of the principles of facies analysis and litho-, bio-, sequence, and chronostratigraphy in surface and subsurface examples. Emphasis in the laboratory on interpretation of depositional environments based on lithofacies, biofacies and sedimentary structures and correlation of stratigraphic sequences using surface and subsurface data.
Prerequisites: GEOS F101X or GE F261; GEOS F112X.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F332  Ore Deposits and Structure  
3 Credits
Offered Spring
Distribution and characteristics (especially mineralogy, morphology, and structure) of major mineral deposit types with background on structural techniques. Emphasis on application to mineral exploration and development. Laboratory exercises stress recognition of major mineral deposit types and zoning and grade patterns; and use of structural techniques in mineral deposit exploration/development.
Prerequisites: GEOS F262 or GEOS F213 and GEOS F214.
Lecture + Lab + Other: 1 + 6 + 0

GEOS F339  Change Detection in Arctic Systems  (n, n)
4 Credits
Offered Spring Odd-numbered Years
This course will build student knowledge and practical experience regarding the visualization and mapping of landform evolution in response to Earth surface processes. A semester long research project will allow students to gain experience in the collection and use of a variety of datasets and equipment used in landscape analysis including ground penetrating radar, real-time-kinematic GPS, Drones and GIS. Overnight field trip required. Special fees apply.
Prerequisites: GEOG F111X; GEOS F304.
Crosslisted with GEOG F339.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F352  Volcanism and Active Geology of the Island of Hawai‘i  
2 Credits
Offered WINTERmester
A field-based course introducing students to the volcanism and active geology of the island of Hawai‘i, and by extension, other oceanic islands. Topics include physical features of the volcanoes, plate tectonics and the origin of volcanism, and the development and “life cycle” of oceanic islands. Students cannot take both GEOS F252 and GEOS F352 for credit.
Prerequisites: GEOS F213 or GEOS F262; GEOS F214, GEOS F222 or GEOS F225.
Stacked with GEOS F252.
Lecture + Lab + Other: 7.5 + 25 + 0
GEOS F370  Sedimentary and Structural Geology for Petroleum Engineers  (n)
4 Credits
Offered Fall Odd-numbered Years
Origin and distribution of sedimentary rocks including depositional environments, stratigraphic relationships and structures. Emphasis on the relationship to petroleum occurrences and petroleum exploration. Laboratory exercises on mapping, structural problems and facies relationships in petroleum exploration.
Prerequisites: GEOS F101X or GE F261.
Cross-listed with PETE F370.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F375  Oral Communication Skills for Geoscientists
1 Credit
Offered As Demand Warrants
This course will give you skills and practice in oral communication, especially as applied to professional geology. The course will provide a comfortable environment for students to develop and improve their skills both in creating and delivering oral presentations. The specific focus will vary with the instructor.
Prerequisites: COJO F131X or COJO F141X; GEOS F225; junior standing.
Lecture + Lab + Other: 0.5 + 0 + 1.5

GEOS F380  Geological Hazards
3 Credits
Offered Spring
Survey of natural hazards and the disasters they cause, with emphasis on geological hazards in Alaska. Investigation of hazardous phenomena, prediction and mitigation. Topics to include: earthquakes, volcanoes, tsunamis, weather/climate, and asteroid impacts. Provides a foundation in basic geological hazards related to science, suitable for use in teaching, communications, policy and emergency management careers.
Prerequisites: GEOS F101X or GEOS F120X or GEOS F106X.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F392  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

GEOS F392P  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 6 + 0

GEOS F398  Research
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

GEOS F401  Invertebrate Paleontology  (n)
3 Credits
Offered Fall Even-numbered Years
Study of invertebrate phyla with extensive geologic records. Emphasis on principles of biostratigraphy and paleoecology, application to geologic problems and case studies from Alaska. Laboratory study of fossil assemblages with emphasis on stratigraphically significant groups. Designed to complement GEOS F322.
Prerequisites: GEOS F315.
Recommended: GEOS F322.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F406  Volcanology
3 Credits
Offered Spring Odd-numbered Years
Physical processes of volcanism. Topics include physical properties of magmas, eruption mechanisms, deposition mechanism and volcanic hazards. Emphasis on explosive volcanism and its products, pyroclastic rocks. Geochemistry and petrology will not be emphasized in this course.
Prerequisites: GEOS F101X or GEOS F120X; MATH F251X; PHYS F103X or PHYS F211X.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F408  Photogeology  (n)
2 Credits
Offered Spring Even-numbered Years
Use of topographic maps, geologic maps, aerial photographs and satellite imagery in interpretation of geological structures, landscapes, landforms and geomorphic processes. Techniques included are map compilation, photo mapping, statistical treatment of map data and composite mapping for planning.
Prerequisites: GEOS F304.
Lecture + Lab + Other: 1 + 3 + 0

GEOS F416  Applied Geophysics  (n)
3 Credits
Offered Spring Even-numbered Years
Introduction to the theory and practice of geophysical techniques and the interpretation and modeling of geophysical data. Topics include: gravity, GPS, magnetic seismic, and electrical methods and their application to regional and local geophysical exploration in Alaska.
Prerequisites: GEOS F318.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F417  Introduction to Geochemistry  (n)
3 Credits
Offered Fall
Application of chemical principles and elemental/isotopic behavior to the study of the Earth. Topics include: aqueous geochemistry, high-temperature mineral-elemental chemistry, isotopic chemistry, kinetics and thermochemistry.
Prerequisites: CHEM F106X; GEOS F322 or CHEM F202.
Stacked with GEOS F618.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F419  Solid Earth Geophysics
3 Credits
Offered Alternate Fall
Concepts and techniques of geophysics including origin of the Earth, its structure and large scale dynamic processes responsible for its surface features. Geophysical techniques including seismology, gravity and magnetic methods are discussed along with measurements of the Earth’s thermal structure, rotation rates, and tidal effects.
Prerequisites: MATH F251X; PHYS F104X.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F422  Geoscience Applications of Remote Sensing  (n)
3 Credits
Offered Fall
Remote sensing and its applications to geologic, environmental and physical sciences. Includes physical principles, digital image processing and hands-on project experience using satellite images for mapping and change detection. Course is not available for audit.
Prerequisites: PHYS F104X or PHYS F212X; junior standing.
Lecture + Lab + Other: 2 + 3 + 0
GEOS F428  Elementary Scanning Electron Microscopy
1 Credit
Offered Spring
Basic theory and operating procedures for scanning electron microscopy. Includes sample preparation, imaging and qualitative elemental analysis. Biological and nonbiological applications are covered.
Prerequisites: Junior standing.
Stacked with GEOS F628.
Lecture + Lab + Other: 0.5 + 1.5 + 0

GEOS F430  Statistics and Data Analysis in Geology  (n)
3 Credits
Offered Spring
Computer-supported geologic applications of elementary statistics, Markov chains, time-series analysis, trend-surface analysis, factor analysis, cluster analysis, discriminant analysis, and multiple regression.
Prerequisites: GEOS F225; STAT F200X.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F431  Foundations of Geophysics
4 Credits
Offered Fall
Applications of continuum mechanics, heat flow theory, and potential theory to geophysical, geologic and glaciological problems. Topics such as postglacial rebound, non-Newtonian fluid flow, thermal convection, stress-relaxation, rheology of earth materials, gravity, and magnetics will be discussed. Emphasis will be placed on methods and tools for solving a variety of problems in global and regional geophysics and the geophysical interpretation of solutions.
Prerequisites: GEOS F419, MATH F302, and MATH F314.
Stacked with GEOS F631.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F436  Beyond the Mouse: Computer Programming and Automation for Geoscientists
2 Credits
Offered Fall
Basic concepts of computer programming and effective automation of tasks using a computer, with an emphasis on tools and problems common to the geosciences and other physical sciences. Use of MATLAB, shell scripting and various command line tools for data analysis, making scientific figures, maps and visualizations.
Prerequisites: Senior standing.
Stacked with GEOS F636.
Lecture + Lab + Other: 1 + 3 + 0

GEOS F438  Basin Analysis
3 Credits
Offered Spring Odd-numbered Years
Examines sedimentary basins as a record of subsidence. Review and discuss techniques used to image basin stratigraphy as well as the quantitative techniques which can be used to recover basin history.
Prerequisites: GEOS F322 or GEOS F370.
Recommended: GEOS F314; GEOS F419.
Stacked with GEOS F638.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F445  Petroleum Geology
3 Credits
Offered Fall Even-numbered Years
Examines the origin of petroleum, the geologic controls of its distribution and accumulation and the basic tools used in exploration and exploitation, including subsurface mapping, well logging and exploration geophysics.
Prerequisites: GEOS F314 and GEOS F322.
Stacked with GEOS F645; PETE F645.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F452  Quaternary Seminar
3 Credits
Offered As Demand Warrants
Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences. This seminar will range widely over diverse interdisciplinary subjects of Quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate palaeontology and sedimentology.
Prerequisites: GEOS F304; GEOS F315; GEOS F322.
Cross-listed with ANTH F451.
Stacked with GEOS F651; ANTH F651.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F453  Palynology and Paleopalynology  (n)
4 Credits
Offered Fall Even-numbered Years
Survey of the evolutionary record of palynomorphs and their uses in biostratigraphy and paleoclimatology. Focus on evolution of palynomorphs from Precambrian to the present and concurrent evolutionary developments of producing plants. Use of Quaternary palynofloras in reconstructing global climates. Labs involve collection of herbarium specimens, processing of fossil palynomorphs, study of type slides and a survey of palynofloras from each geologic period.
Prerequisites: BIOL F115X or GEOS F315; senior standing.
Stacked with GEOS F653.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F454  Field Geology  (W, n)
8 Credits
Offered Summer Odd-numbered Years; As Demand Warrants
Practical experience in a variety of field settings collecting and presenting basic geologic field data. Includes field mapping of stratigraphic and structural problems using topographic maps, airbone and satellite images. Students will prepare geologic maps in a variety of tectonic and lithologic settings and develop written reports detailing the geologic history for several study areas. Exercises in collection and use of geophysical data as an aid to geologic mapping. Hiking off trails in a variety of terrains with up to 2,000 vertical feet of elevation gain per day. Course fees cover transportation and subsistence outside of Fairbanks. Entrance by preregistration only; apply through the department. Early registration recommended.
Prerequisites: GEOS F214; GEOS F225; GEOS F309; GEOS F314; GEOS F315; GEOS F322.
Lecture + Lab + Other: 8 + 0 + 0
GEOS F456  Paleopedology  
3 Credits  
Offered Fall Even-numbered Years  
A survey course focusing on the recognition and use of paleosols (fossil soils) as paleoenvironmental indicators, stratigraphic markers and in paleogeographic reconstructions from Precambrian to Holocene. Examination of theories of soil formation, major soil processes and approaches to soil classification. Review of geochemical, mineralogical, morphological and micromorphological techniques. Use of paleosols for paleolandscape evolution and basin analysis. Geological, tectonic, archaeological and environmental applications of paleosols are discussed.  
Prerequisites: GEOS F322 or NRM F380.  
Stacked with GEOS F656.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOS F458  Applications of GPS and GIS in Geophysics  (n)  
3 Credits  
Offered Spring  
Prerequisites: GEOG F338 or NRM F338.  
Stacked with GEOS F658.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOS F460  The Dynamic Alaska Coastline  
3 Credits  
Offered Spring Even-numbered Years  
Alaska’s diverse coastal system provides abundant ecosystem services and globally important resources. This course provides an interdisciplinary perspective on the dynamic coastal landscape of Alaska from Southcentral to the Arctic, and delves into the driving geological, oceanographic and climate processes shaping Alaska’s past and present coastline. Through a semester long research projects students will learn how to measure and map coastal changes associated with natural and human perturbations. An overnight field trip will serve as an active learning opportunity to integrate course knowledge with hands-on field work.  
Prerequisites: Junior standing; GEOG F111X or GEOS F101X; CHEM F105X or PHYS F103X; NRM F338 or equivalent GIS coursework.  
Cross-listed with GEOG F460.  
Stacked with GEOS F660;GEOG F660.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOS F462  Glacial & Periglacial Geology  (O, n)  
4 Credits  
Offered Fall Odd-numbered Years  
Prerequisites: COJO F131X or COJO F141X; GEOS F304.  
Stacked with GEOS F663.  
Lecture + Lab + Other: 3 + 3 + 0  

GEOS F465  Geoarchaeology  (a)  
3 Credits  
Offered As Demand Warrants  
Geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day weekend field trip in late April or early May.  
Prerequisites: GEOS F101X; an introductory course in archaeology.  
Crosslisted with ANTH F465.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOS F477  Ice in the Climate System  (O, W)  
3 Credits  
Offered Fall  
Earth’s cryosphere includes seasonal snow, permafrost, sea ice, mountain glaciers and ice sheets. This course will cover the formation of each of these forms of snow and ice and their response to changing environmental conditions. Interdisciplinary perspectives allow study of the role snow and ice plays within the Arctic system (including atmosphere, ocean and ecosystems), with an emphasis on Alaska. The cryosphere will also be placed in context of the global climate system. Course will include instructor and peer feedback.  
Prerequisites: PHYS F103X or PHYS F211X; MATH F251X.  
Lecture + Lab + Other: 2 + 3 + 0  

GEOS F478  Ice Age Alaska  (a)  
3 Credits  
Offered Spring Even-numbered Years  
An overview of the paleoenvironments of Alaska including climate, glacier and biotic history including humans. Emphasis on events of the past that have left important legacies on present landscapes. The course begins with two weekend field trips and then surveys key literature describing Alaska’s ice-age history. The focus is on Alaska and the Yukon, but topics will range more widely into other parts of the Arctic and its adjacent seas.  
Prerequisites: Senior standing in anthropology, biological Sciences, Earth science, geography, geoscience, or northern studies.  
Cross-listed with GEOG F478.  
Stacked with GEOG F678;GEOS F678.  
Lecture + Lab + Other: 3 + 0 + 0
GEOS F482  Geoscience Seminar
1 Credit
A weekly seminar, given by guest speakers, on a topic in geosciences. Students are expected to prepare for the seminars and to participate in discussion following the seminars.
Stacked with GEOS F682.
Lecture + Lab + Other: 1 + 0 + 0

GEOS F483  Research Design, Writing and Presentation Methods
3 Credits
Offered Fall
This course is designed as a capstone research and professional development course for geography, natural resources management and geoscience majors. Students will focus on designing an individual research project and proposal. This course will provide real world active learning assignments that seek to integrate the knowledge and skills gained through undergraduate work, and prepares students for graduate and professional level projects. The course will focus on scientific writing, and the oral, written and graphical presentation of data and research results.
Prerequisites: COJO F131X or COJO F141X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing.
Cross-listed with GEOG F483.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F485  Mass Extinctions, Neocatastrophism and the History of Life
3 Credits
Offered Spring Odd-numbered Years
In-depth analysis of the literature regarding mass extinction, focusing on evidence for catastrophes and impact on the uniformitarian paradigm. Effects of mass extinctions on the evolutionary history of extant and fossil animals and plants will be explored through readings from classic and current literature in paleontology. The course will emphasize critical reading and application of scientific methods to reconstruction of geologically rapid events in deep time.
Prerequisites: GEOS F322 and GEOS F315.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F486  Vertebrate Paleontology
3 Credits
Offered Spring Odd-numbered Years
The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematics of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups.
Prerequisites: BIOL F310 or GEOS F315.
Cross-listed with BIOL F486.
Stacked with GEOS F686; BIOL F686.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F488  Undergraduate Research
1-3 Credits
Advanced research topics from outside the usual undergraduate requirements.
Prerequisites: Permission of instructor.
Recommended: A substantial level of technical/scientific background.
Lecture + Lab + Other: 1-3 + 0 + 0

GEOS F488P  Undergraduate Research
1-3 Credits
Advanced research topics from outside the usual undergraduate requirements.
Prerequisites: Permission of instructor.
Recommended: A substantial level of technical/scientific background.
Lecture + Lab + Other: 1-3 + 0 + 0

GEOS F492  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

GEOS F492P  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

GEOS F499  Geology and Geophysics Senior Thesis
3 Credits
This course is intended for talented students to explore geology or geophysics more deeply through research under the mentorship of a faculty member in the department.
Prerequisites: Geology and Geophysics major with senior standing and a GPA of 3.2 or higher, completion of a minimum of 2 credits of GEOS F488 on a project approved by faculty mentor and department chair, and submission of a proposal approved by faculty mentor and department chair.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F500  Introduction to X-ray Spectrometry
3 Credits
Offered Fall
Theory of X-ray spectrometry, qualitative and quantitative elemental analysis. Mechanics of electron, microprobe and X-ray fluorescence analysis. Applicable to geologic, materials science and biologic samples. Required for use of the microprobe at UAF.
Prerequisites: PHYS F212X; STAT F300; GEOS F417; graduate standing in the sciences or engineering.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F600  Geophysical Fields
3 Credits
Offered Spring Odd-numbered Years
Introduction to the application of potential theory and its associated mathematical tools to fields of geophysical interest, namely gravity, magnetics, and heat flow. Emphasis will be placed on methods and tools for solving a variety of problems in global and regional geophysics, and the geophysical interpretation of solutions.
Prerequisites: MATH F421 and MATH F422; or graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F604  Seismology
3 Credits
Offered Spring Odd-numbered Years
Sources of ground motion including focal mechanisms, magnitude and propagation of waves within the earth. Measurement of seismic data by analog and digital techniques and subsequent treatment of seismic data by various techniques including inversion.
Lecture + Lab + Other: 3 + 0 + 0
GEOS F605  Geochronology  
3 Credits  
Offered Fall Odd-numbered Years  
Application of the most commonly used radiometric dating methods to geologic problems. Fundamentals of the K-Ar, Rb-Sr, fission-track, U-Th-Pb and C methods. Laboratory training in K-Ar and fission-track dating techniques.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F606  Volcanology  
3 Credits  
Offered Fall Odd-numbered Years  
Physical processes of volcanism. Topics include physical properties of magmas, eruption mechanisms, deposition mechanism and volcanic hazards. Emphasis on explosive volcanism and its products, pyroclastic rocks. Geochemistry and petrology will not be emphasized in this course.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F607  Advanced Paleomagnetism  
2 Credits  
Lecture + Lab + Other: 0 + 0 + 0

GEOS F611  Advanced Structural Geology and Tectonics  
3 Credits  
Offered Fall Even-numbered Years  
An advanced course providing an in-depth treatment of specific aspects of structural geology and tectonics. Topics to be considered in different semesters include tectonics and sedimentation, mountain belts of the world, structural analysis, structural geology of a specific tectonic setting (such as fold-and-thrust belts or rifts), (E) active tectonics and topography, (F) structural interpretation of seismic reflection data, and (G) other special topics in structural geology or tectonics. Note: Course may be repeated for different topics up to three times for credit.  
Prerequisites: GEOS F314; graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F612  Geologic Evolution of Alaska  (a)  
3 Credits  
Offered Fall Even-numbered Years  
An overview of the geological provinces of Alaska and neighboring continental and oceanic regions. Emphasis will be on the geologic history and tectonic evolution of Alaska.  
Prerequisites: GEOS F314 and GEOS F322; OR graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F613  Global Tectonics  
3 Credits  
Offered Fall Odd-numbered Years  
An advanced course dealing with tectonic theory. Emphasis on plate tectonics with discussions of the evidence supporting the plate hypothesis and the interaction of plates both past and present.  
Prerequisites: GEOS F314 and GEOS F322; OR graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F614  Ice Physics  (a)  
3 Credits  
Offered Spring Even-numbered Years  
A survey of the physics of ice. Topics will include the crystal structure and properties of ice, high pressure phases, hydrogen bonding, mechanical, thermal, electrical and acoustic properties, nucleation and growth, and optical and surface properties (adhesion, friction).  
Prerequisites: MATH F421 and MATH F422; OR graduate standing.  
Cross-listed with PHYS F614.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F615  Sea Ice  (a)  
3 Credits  
Offered Fall Even-numbered Years  
A study of sea ice in the natural environment including sea ice properties and processes on the micro-scale and the macro-scale, freezing processes and sea ice growth, ice decay and ice dynamics.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F616  Permafrost  (a)  
3 Credits  
Offered Spring Odd-numbered Years  
Study of the occurrence, thickness, environmental problems, and mass and energy transport of permafrost, including soil and ice interaction, freezing and thawing processes, and mechanical and electrical properties and processes.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F617  Glaciers  (a)  
3 Credits  
Offered Fall Odd-numbered Years  
The mechanisms responsible for the existence, motion and variations of present-day glaciers and ice sheets, the paleoclimate information they contain and their role in engineering hydrology.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F618  Introduction to Geochemistry  
3 Credits  
Offered Fall  
Application of chemical principles and elemental/isotopic behavior to study of the Earth. Topics include: aqueous geochemistry, high-temperature mineral-elemental chemistry, isotopic chemistry, kinetics and thermochemistry.  
Prerequisites: CHEM F106X; GEOS F322 OR CHEM F331 and CHEM F332; graduate standing.  
Stacked with GEOS F417.  
Lecture + Lab + Other: 3 + 0 + 0

GEOS F619  Advanced X-ray Spectroscopy  
2 Credits  
Offered As Demand Warrants  
Advanced X-ray techniques. Topics include preparation of unusual samples, quantification methods, x-ray mapping and classification, and error analysis. Each student will develop a project to explore the limits of x-ray analysis. Note: Course may be repeated three times for credit.  
Prerequisites: GEOS F600.  
Lecture + Lab + Other: 1 + 3 + 0
GEOS F620  Geodynamics
3 Credits
Offered Fall Even-numbered Years
Applications of continuum mechanics and heat flow theory to geophysical, geologic, and glaciological problems. Topics such as postglacial rebound, non-Newtonian fluid flow, thermal convection, stress-relaxation, and the rheology of earth materials will be discussed.
Prerequisites: MATH F421 and MATH F422; OR graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F621  Advanced Petrology
4 Credits
Offered As Demand Warrants
A detailed treatment of various aspects of petrology. Specific topics to be considered in different semesters include metamorphic petrology, igneous petrology, and igneous and metamorphic petrography. Each time the course is offered, only one topic will be presented.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F621B  Adv Petrology: Igneous Petrology
3-4 Credits
Lecture + Lab + Other: 2-3 + 3-6 + 0

GEOS F621C  Advanced Petrology
3-4 Credits
An advanced course providing a detailed treatment of various aspects of petrology. Specific topics to be considered in different semesters include: (A) metamorphic petrology, (B) igneous petrology, and (C) igneous and metamorphic petrography. Each time the course is offered, only one topic will be presented.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 2-3 + 3-6 + 0

GEOS F622  Digital Image Processing in the Geosciences
3 Credits
Offered Fall Odd-numbered Years
Image processing and analysis techniques as they relate to remote sensing and other applications in the geosciences. Apart from lectures and demonstrations, the advantages and drawbacks of different methods and approaches and their applicability to geoscience problems will be evaluated through exercises and a course project.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F625  Applied Seismology
4 Credits
Offered Spring Even-numbered Years
Presentation of modeling techniques for earthquakes and Earth structure using wave propagation algorithms and real seismic data. Covers several essential theories and algorithms for applications in seismology, as well as the basic tools needed for processing and using recorded seismograms. Topics include the seismic wavefield (body waves and surface waves), earthquake moment tensors, earthquake location and seismic tomography. Assignments require familiarity with vector calculus, linear algebra and computational tools such as Matlab.
Prerequisites: MATH F253X; MATH F314.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F627  Inverse Problems and Parameter Estimation
3 Credits
Offered Spring Odd-numbered Years
An inverse problem uses observations to infer properties of an unknown physical model. One example is how seismometer recordings can be used to infer the location of an earthquake. This course covers inverse theory and methods for solving inverse problems, including numerous examples arising in the natural sciences. Topics include linear regression, method of least squares, discrete ill-posed inverse problems, estimation of uncertainties, iterative optimization, and probabilistic (Bayesian) and sampling approaches. Assignments and computational laboratory exercises require familiarity with linear algebra and computational tools such as Matlab.
Prerequisites: MATH F253X; MATH F314.
Cross-listed with PHYS F625.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F628  Elementary Scanning Electron Microscopy
1 Credit
Offered Spring
Basic theory and operating procedures for scanning electron microscopy. Includes sample preparation, imaging and qualitative elemental analysis. Biological and nonbiological applications are covered.
Prerequisites: Graduate standing.
Stacked with GEOS F428.
Lecture + Lab + Other: 0.5 + 1.5 + 0

GEOS F629  Geologic Hazards and Natural Disasters
3 Credits
Offered Spring Odd-numbered Years
Examination of hazardous geologic processes which produce natural disasters, including volcanism, tectonism, flooding, etc. Includes scientific approaches to evaluating the magnitude and probability of risk from future hazardous events.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F631  Foundations of Geophysics
4 Credits
Offered Fall
Applications of continuum mechanics, heat flow theory, and potential theory to geophysical, geologic and glaciological problems. Topics such as postglacial rebound, non-Newtonian fluid flow, thermal convection, stress-relaxation, rheology of earth materials, gravity, and magnetics will be discussed. Emphasis will be placed on methods and tools for solving a variety of problems in global and regional geophysics and the geophysical interpretation of solutions.
Prerequisites: Graduate standing.
Recommended: GEOS F419; MATH F302; MATH F314.
Stacked with GEOS F431.
Lecture + Lab + Other: 3 + 3 + 0
GEOS F633  Aquatic and Environmental Geochemistry
3 Credits
Offered Spring Odd-numbered Years
Chemistry of aquatic and terrestrial environments, covering thermodynamic, kinetic and structural principles involved in aqueous geochemical systems; builds on prior physical chemistry courses. Emphasis on aquatic speciation and heterogeneous interactions (dissolution/precipitation, sorption and microbial processes) involved in the partitioning, transformation and transport of chemical species in the environment.
Prerequisites: ENVE F641 or GEOS F618.
Cross-listed with CHEM F609.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F635  Advanced Economic Geology
1-4 Credits
Offered As Demand Warrants
An advanced course providing an in-depth treatment of various aspects of economic geology. Specific topics will be considered in different semesters. They include ore microscopy, industrial minerals, economics of minerals, geochemistry of ore deposits, modern fossil fuel exploration and detailed study of particular ore deposit type. Each time the course is offered, only one topic will be presented. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 1-4 + 3 + 0

GEOS F635D  Geochemistry of Ore Deposits
1-4 Credits
Lecture + Lab + Other: 1-4 + 3 + 0

GEOS F635F  Adv Econ Geology: Ore Deposits
1-4 Credits
Lecture + Lab + Other: 1-4 + 3 + 0

GEOS F636  Beyond the Mouse: Computer Programming and Automation for Geoscientists
2 Credits
Offered Fall
Basic concepts of computer programming and effective automation of tasks using a computer, with an emphasis on tools and problems common to the geosciences and other physical sciences. Use of MATLAB, shell scripting and various command line tools for data analysis, making scientific figures, maps and visualizations.
Prerequisites: Graduate standing.
Stacked with GEOS F436.
Lecture + Lab + Other: 1 + 3 + 0

GEOS F637  Rock-Forming Minerals
4 Credits
Offered Spring Odd-numbered Years
Examination of the rock-forming minerals; their structure and composition. Application of mineral data to problems in geochemistry, petrology and ore deposits. Laboratory involves analysis of minerals by various analytical techniques.
Prerequisites: GEOS F417 and permission of instructor; or graduate standing.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F638  Basin Analysis
3 Credits
Offered Spring Odd-numbered Years
Examines sedimentary basins as a record of subsidence. Review and discuss techniques used to image basin stratigraphy as well as the quantitative techniques which can be used to recover basin history.
Prerequisites: Graduate standing.
Stacked with GEOS F438.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F639  InSar and Its Applications
3 Credits
Offered As Demand Warrants
Introduction to the concepts of repeat-pass spaceborne SAR interferometry. Practical use of the technique to derive displacements of the solid earth, glaciers and ice sheets to a precision of a few centimeters and accurate digital elevation models of the Earth's surface.
Prerequisites: Basic remote sensing course.
Cross-listed with PHYS F639.
Lecture + Lab + Other: 2 + 2 + 0

GEOS F640  Petrology of Carbonate Rocks
4 Credits
Offered Spring As Demand Warrants
Origin, depositional environments, diagenesis and classification of limestones, dolostones and related rocks.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F643  Sandstone Depositional Environments
3 Credits
Offered Fall Even-numbered Years
Sedimentary depositional environments treating the hydrodynamics, sediment dispersal patterns and preservation potential of modern terrigenous clastic depositional environments and criteria for recognizing their ancient counterparts in the geologic record.
Prerequisites: GEOS F320 and GEOS F322; or graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F645  Petroleum Geology
3 Credits
Offered Fall Even-numbered Years
Examines the origin of petroleum, the geologic controls of its distribution and accumulation and the basic tools used in exploration and exploitation, including subsurface mapping, well logging and exploration geophysics.
Prerequisites: Graduate standing.
Cross-listed with PETE F645.
Stacked with GEOS F445.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F647  Advanced Sedimentology and Stratigraphy
3 Credits
Offered Spring As Demand Warrants
Various topics in sedimentology and stratigraphy. Specific offerings to be presented at various times include sequence stratigraphy and sea-level analysis, paleoclimatic and paleoceanographic analyses, sandstone petrology, thermal maturation and geohistory analysis of sediments.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0
GEOS F651 Quaternary Seminar
3 Credits
Offered As Demand Warrants
Discussion of the Quaternary Period (relatively recent past – spanning the past two million years) in order to gain a better understanding of the landscape, biota and climate of the present day. Quaternary studies are concerned with the historical dimension of the natural sciences. This seminar will range widely over diverse interdisciplinary subjects of Quaternary interest, such as paleoclimatology, paleobiogeography, vertebrate paleontology and sedimentology.
Prerequisites: Graduate standing.
Cross-listed with ANTH F651.
Stacked with ANTH F451; GEOS F452.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F653 Palynology and Paleopalynology
4 Credits
Offered Fall Even-numbered Years
Survey of the evolutionary record of palynomorphs and their uses in biostratigraphy and paleoecology. Focus on evolution of palynomorphs from Precambrian to the present and concurrent evolutionary developments of producing plants. Use of Quaternary palynofloras in reconstructing global climates. Labs involve collection of herbarium specimens, processing of fossil palynomorphs, study of type slides and a survey of palynofloras from each geologic period.
Prerequisites: Graduate standing.
Stacked with GEOS F453.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F654 Visible and Infrared Remote Sensing
3 Credits
Offered Spring Even-numbered Years
In-depth coverage of the principles, physics, sensor technology, processing and applications of remote sensing in the visible and infrared region, including but not limited to electromagnetic spectrum, radiation laws, spectral signatures, atmospheric interactions, temperature emissivity estimation, analysis and feature extraction from data sets. The laboratory part of the course will provide hands-on experience on special processing techniques, and the possibility of using these techniques for a student-defined term project in areas of geology, volcanology, glaciology, hydrology, environmental sciences, etc.
Prerequisites: GEOS F422.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F655 Tectonic Geodesy
3 Credits
Offered Spring Even-numbered Years
Introduction to modern space geodetic methods and details their application to the study of active earth processes such as plate tectonics, fault mechanics and volcanology. Includes space geodesy methods such as global positioning system, as standard geophysical tools for the study of earthquakes, active tectonics and volcanology.
Prerequisites: MATH F314; MATH F421; MATH F422; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F656 Paleopedology
3 Credits
Offered Fall Even-numbered Years
A survey course focusing on the recognition and use of paleosols (fossil soils) as paleoenvironmental indicators, stratigraphic markers and in paleogeographic reconstructions from Precambrian to Holocene. Examination of theories of soil formation, major soil processes and approaches to soil classification. Review of geochemical, mineralogical, morphological and micromorphological techniques. Use of paleosols for paleolandscape evolution and basin analysis. Geological, tectonic, archaeological and environmental applications of paleosols are discussed.
Prerequisites: Graduate standing.
Stacked with GEOS F456.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F657 Microwave Remote Sensing
3 Credits
Offered Spring Odd-numbered Years
The principles and applications of active and passive microwave remote sensing with emphasis on spaceborne remote sensing of the Earth's atmosphere, land and oceans. The laboratory section will provide hands-on experience on special processing techniques, and the possibility of using these techniques for a student-defined term project in areas of geology, volcanology, glaciology, hydrology, environmental sciences, etc.
Prerequisites: GEOS F422.
Lecture + Lab + Other: 2 + 2 + 0

GEOS F658 Applications of GPS and GIS in Geophysics
3 Credits
Offered Spring
Prerequisites: Graduate standing.
Stacked with GEOS F458.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F660 The Dynamic Alaska Coastline
3 Credits
Offered Spring Even-numbered Years
Alaska's diverse coastal system provides abundant ecosystem services and globally important resources. This course provides an interdisciplinary perspective on the dynamic coastal landscape of Alaska from Southcentral to the Arctic, and delves into the driving geological, oceanographic and climate processes shaping Alaska's past and present coastline. Through a semester long research projects students will learn how to measure and map coastal changes associated with natural and human perturbations. An overnight field trip will serve as an active learning opportunity to integrate course knowledge with hands-on field work.
Prerequisites: Graduate standing.
Cross-listed with GEOG F660.
Stacked with GEOG F460; GEOS F460.
Lecture + Lab + Other: 3 + 0 + 0
GEOS F663 Glacial and Periglacial Geology (a) 4 Credits
Offered Fall Odd-numbered Years
Prerequisites: GEOS F304 or graduate standing.
Stacked with GEOS F463.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F666 Scientific Teaching 2 Credits
Offered Spring Even-numbered Years
This course explores methods for teaching science at the university level. Emphasis is placed on methods of course design, instructional techniques, assessment and course management that have been shown by research to improve student learning. This course is intended for graduate students in the sciences who have an interest in improving their teaching skills. The course format will be a mixture of discussion, workshops and seminars. If the course is over-enrolled, priority will be given to teaching assistants who are assigned to teach large, introductory level (100 or 200 level) courses during the semester they are taking this course.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 2 + 0 + 0

GEOS F670 Selected Topics in Volcanology 2 Credits
Offered Fall
Survey course in subjects relating to volcanology. Possible subjects include, but are not limited to, eruption dynamics, geophysics of eruptions, volatiles in volcanic systems, modeling volcanic systems. May be repeated for credit.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 2 + 0 + 0

GEOS F671 Volcano Seismology 3 Credits
Offered Spring Odd-numbered Years
Survey of seismic behavior of volcanoes. Topics include instrumentation, terminology, swarms and their attributes, high-frequency events, volcanic explosions, volcanic tremor, attenuation and velocity structure, cycles of activity, eruption forecasting, detection of magma chambers, case studies and selected topics. Oral and written student presentations will be required.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F675 Presentation Techniques in the Geosciences 2 Credits
Offered Fall
Instruction and practice in oral and written communication skills specifically related to the geosciences. Oral and written presentation of abstracts, resumes, proposals and reports required. Works critically analyzed by instructor(s) and peers for both geoscience content and communication effectiveness.
Prerequisites: Graduate standing.
Stacked with GEOS F475.
Lecture + Lab + Other: 1 + 3 + 0

GEOS F676 Remote Sensing of Volcanic Eruptions 3 Credits
Offered As Demand Warrants
Focuses on the use of satellite images to detect, monitor and mitigate volcanic hazards, and to understand eruption processes. Thermal anomalies, volcanic clouds and surface morphological features will be discussed in the lecture and test cases analyzed in the laboratory. Satellite data include GOES, AVHRR, MODIS, ASTER, Landsat and SAR. Course may be repeated twice for credit.
Recommended: GEOS F422 or equivalent remote sensing class.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F678 Ice Age Alaska (a) 3 Credits
An overview of the paleoenvironments of Alaska including climate, glacier and biotic history including humans. Emphasis on events of the past that have left important legacies on present landscapes. The course begins with two weekend field trips and then surveys key literature describing Alaska’s ice-age history. The focus is on Alaska and the Yukon, but topics will range more widely into other parts of the Arctic and its adjacent seas.
Prerequisites: Graduate standing in anthropology, biological sciences, Earth science, geography, geoscience, or northern studies.
Cross-listed with GEOG F678.
Stacked with GEOG F478; GEOS F478.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F682 Geoscience Seminar 1 Credit
A weekly seminar, given by guest speakers, on a topic in geosciences. Students are expected to prepare for the seminars and to participate in discussion following the seminars.
Prerequisites: Graduate standing.
Stacked with GEOS F482.
Lecture + Lab + Other: 1 + 0 + 0

GEOS F686 Vertebrate Paleontology 3 Credits
Offered Spring Odd-numbered Years
The study of vertebrate evolution through geologic time. Covers the temporal range, diversity and systematics of major vertebrate groups as documented in the fossil record, with an emphasis on current problems in vertebrate evolutionary pattern and process. Labs emphasize comparative morphology and identification of major vertebrate groups.
Prerequisites: Graduate standing.
Cross-listed with BIOL F686.
Stacked with BIOL F486; GEOS F486.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F692 Geol/Geophys Seminar 1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

GEOS F692A Geology/Geophysics Seminar 1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

GEOS F692B Geology/Geophysics Seminar 1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

GEOS F692P Seminar 1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0
German (GER)

GER F101X Elementary German I (h) 5 Credits
Introduction to the German language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

GER F102X Elementary German II (h) 5 Credits
Introduction to the German language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.
Prerequisites: GER F101X.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

GER F201 Intermediate German I (h) 3 Credits
Continuation of GER F102X. Increasing emphasis on reading ability and cultural material. Conducted in German.
Prerequisites: GER F102X.
Lecture + Lab + Other: 3 + 0 + 0

GER F202 Intermediate German II (h) 3 Credits
Continuation of GER F201. Increasing emphasis on reading ability and cultural material. Conducted in German.
Prerequisites: GER F201.
Lecture + Lab + Other: 3 + 0 + 0

GER F301 Advanced German (O, W, h) 3 Credits
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in German.
Prerequisites: COJO F131X or COJO F141X, WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; GER F301.
Lecture + Lab + Other: 3 + 0 + 0

GER F302 Advanced German (O, W, h) 3 Credits
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in German.
Prerequisites: COJO F131X or COJO F141X, WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; GER F301.
Lecture + Lab + Other: 3 + 0 + 0

GER F431 Studies in the Culture of the German Speaking World (W, h) 3 Credits
Study of the cultures of the German-speaking world. Students may repeat course for credit if topic varies. Note: Course may be repeated for credit if topic varies.
Prerequisites: WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; GER F301; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

GER F432 Studies of German Literature (W, h) 3 Credits
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Student may repeat course for credit when topics vary. Note: Course may be repeated for credit if topic varies.
Prerequisites: WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X, or WRTG F214X; GER F302; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

GER F460 History of German Film (O, W, h) 3 Credits
In-depth study of a representative selection of films from the 1920s to the present, taught in English and German (films will be in German with English subtitles). Students of German will have a special discussion session in German and will do reading and writing in German. Cross-listed with COJO F460
Prerequisites: Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

GER F488 Individual Study: Senior Project 3 Credits
Offered normally in the semester preceding the student’s graduation. Designed to permit the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the sixth week of the semester preceding the semester of graduation. Conducted in German.
Prerequisites: At least 10 credits in upper-division German.
Lecture + Lab + Other: 3 + 0 + 0
Health (HLTH)

HLTH F100  Medical Terminology  
3 Credits  
Study of medical terminology, including analysis and origin of word roots, prefixes and suffixes. Understanding the word components, students will be able to build, spell and define medical words. Content will be presented by body systems focusing on terms for anatomy, diagnostic, laboratory and medical specialties. Includes use of medical dictionary, word pronunciation and abbreviations. Designed for health care professionals.  
Cross-listed with MA F100.  
Lecture + Lab + Other: 3 + 0 + 0  

HLTH F105  Introduction to Health Careers  
2 Credits  
Introduction to health careers and the psychology of patient care. Roles and responsibilities of different members/functional units of the health care settings; information on related job and educational opportunities; needs and roles of health providers in rural and urban Alaska settings.  
Prerequisites: High school graduation or GED or permission of program coordinator.  
Lecture + Lab + Other: 2 + 0 + 0  

HLTH F106  Human Behavior in Health Care  
3 Credits  
Discussion of general concepts in human behavior and the specialized psychological issues when dealing with patients and loved ones in health care settings. Students perform self-evaluation and survey other cultures to allow examination of perceptions, individual biases, beliefs and their impacts on behavior.  
Lecture + Lab + Other: 3 + 0 + 0  

HLTH F107  Nurse Aide Training  
9 Credits  
Teaches basic nursing skills necessary to assist the nurse and be an efficient health care team member. Presents positive communication skills while providing care of residents’ physical and emotional needs in a variety of health care settings. Content satisfies the theory and clinical skills needed to take the National Nurse Aide Exam administered by the Alaska Board of Nursing to become a Certified Nurse Aide. Students should take HLTH F114 if they desire an introduction to anatomy and physiology prior to taking in-depth course work in this field. Students must be in good physical condition, have current immunizations, and health care provider certification card.  
Prerequisites: High school graduation or GED; a 10th grade reading level by exam; HLTH F111 or on the job agency training plus two years experience and instructor approval.  
Lecture + Lab + Other: 3 + 4 + 0  

HLTH F111  Personal Care Attendant Training  
4 Credits  
Designed to train personal care attendants in basic care necessary to assist nurses and to be efficient health care team members. Course qualifies students for state certificate of completion as personal care attendants. Eighty-eight (88) hours of class, lab and clinical practice is included. Requires criminal background check. Other immunizations as required by the clinical site. High school graduation or GED; Placement into or completion of DEV F055; Placement into or completion of WRTG F090. Students must be in good physical condition.  
Prerequisites: Documentation of the following vaccines: Hepatitis B series, two MMRs, two chickenpox and a two-step PPD testing within previous 12 months of the clinical component of the class. Students are encouraged to have a titer drawn to prove immunity for the chickenpox, MMR and hepatitis B.  
Corequisites: AHA BLS provider or healthcare provider CPR card and first aid card.  
Lecture + Lab + Other: 2.5 + 3 + 0  

HLTH F113  Personal Care Attendant to Nursing Assistant Bridge  
5 Credits  
Offered as Demand Warrants  
Trains personal care attendants to become Certified Nurse Assistants. Students build upon basic PCA skills and experience. Provides the additional classroom, laboratory and clinical hours necessary to sit for the state Certified Nurse Assistant exam. Students must be in good physical condition, have current immunizations, and health care provider CPR card.  
Prerequisites: High school graduation or GED; a 10th grade reading level by exam; HLTH F111 or on the job agency training plus two years experience and instructor approval.  
Lecture + Lab + Other: 3 + 4 + 0  

HLTH F114  Fundamentals of Anatomy and Physiology  
4 Credits  
Provides a basic understanding of human anatomy and physiology. Recommended for individuals interested in health careers or students seeking an introduction to anatomy and physiology prior to taking in-depth course work in this field. Students should take HLTH F114 if they took HLTH F100, and MA F114 if they took MA F100.  
Recommended: HLTH F100 or MA F100; high school biology and chemistry.  
Cross-listed with MA F114.  
Lecture + Lab + Other: 4 + 0 + 0  

HLTH F116  Mathematics in Health Care  
3 Credits  
Practical application of mathematics in health care, including arithmetic review, percentages, interest, ratio, proportion, dimensional analysis, metric system, medication calculation, graphs, charts and measurement instruments.  
Prerequisites: DEV M054; or placement in DEV M055.  
Lecture + Lab + Other: 3 + 0 + 0  

HLTH F118  Medical Law and Ethics  
2 Credits  
In-depth coverage of legal and ethical issues encountered in health care settings. Students will gain a practical knowledge of legal and ethical principles and application of these principles in health care settings.  
Lecture + Lab + Other: 2 + 0 + 0
HLTH F122  First Aid and CPR for the Healthcare Provider  
0 Credit  
This course is designed to meet the needs of the students entering the health care profession for a variety of entry level jobs. The focus on recognizing the type of emergency interventions that exist, assessing the needs of the patient and performing interventions to benefit and help stabilize the patient for the first few minutes of an emergency, until EMS arrives. It is divided into two separate topics, first-aid and CPR, both based on the American Heart Association’s curriculum. The first aide component is four hours in length. Students learn to safely assess people experiencing an illness or injury, perform immediate interventions and do no further harm until EMS arrives at their location. The CPR component in six hours in length and is the American Heart Association’s basic life support of the healthcare providers course. It meets the requirements of any employee or volunteer needing proof that they are current with the recognized standards for CPR, which is the certification required to begin clinical practice. Includes first-aid certification and healthcare provider CPR certification (adult, child and infant/AED). This is an American Heart Association ten hour training.  
Lecture + Lab + Other: 0 + 0 + 0

HLTH F130  Medical Office Technology  
3 Credits  
Offered Spring  
Introduces current and potential health care workers to computers in the medical office. Will study medical office management software and electronic health record systems. Includes discussion of computer hardware and software, working with operating systems, keyboarding, word processing, spreadsheets, presentation creation and formatting, and database concepts. Special fees may apply.  
Lecture + Lab + Other: 3 + 0 + 0

HLTH F132  Administrative Procedures I  
2 Credits  
Administrative responsibilities performed by medical/dental assistants and other health care providers in outpatient facilities. Includes duties of the office assistant, receptionist or secretary. Focus on reception, telephone procedures, public relations and professionalism.  
Prerequisites: High school graduation or GED.  
Lecture + Lab + Other: 2 + 0 + 0

HLTH F135  ICD-10-CM Coding  
3 Credits  
Offered As Demand Warrants  
In-depth study of the International Classification of Diseases (ICD), designed for classification of patient morbidity and mortality information for statistical purposes and for the indexing of health records for the health care profession.  
Recommended: HLTH F100.  
Lecture + Lab + Other: 3 + 0 + 0

HLTH F203  Science of Nutrition  
3 Credits  
Introduction to the principles of nutrition and its relationship to the life cycle. Focus on the importance nutrition plays in personal health and how to objectively evaluate nutritional intake using scientifically sound resources.  
Lecture + Lab + Other: 3 + 0 + 0

HLTH F207  Medication Aide Course  
6 Credits  
Basic pharmacology and medication administration for certified nurse aides and personal care attendants. Includes drug delivery routes, classifications, effects and side effects. Communication principles, ethics, nursing process, and body structure and function will be reviewed. This course prepares the CNA to assist the RN or LPN to pass medications in health care settings as approved by the Alaska Board of Nursing and to sit for the National Council State Board of Nursing Medication Aide Certification Exam. The CNA student is not required to sit for the NCSBN MA Examination to pass the course. It will prepare the PCA to assist in the delivery of medications in ALH and private homes. Other vaccines may be required by the clinical site. Must have a current AHA BLS provider or healthcare provider CPR and first aid card.  
Prerequisites: Current license as a CNA or PCA by the State of Alaska, have at least one full year of experience as a CNA/PCA, supply three letters of reference from healthcare professionals, Accuplacer sentence skills and reading comprehension total score of at least 110; ALEKS test score of at least 15; be 18 years of age or older; documentation of vaccines or titer for the following: Hepatitis B series, two MMRs, two chickenpox and a two-step PPD testing within previous 12 months of the clinical component of the class.  
Lecture + Lab + Other: 4 + 4 + 0

HLTH F208  Human Diseases  
3 Credits  
Introduction to the study of human diseases. Pathogenesis, etiology and predisposing factors will be examined. The most common diseases and disorders of each body system are presented along with a review of the pertinent anatomy and physiology. Includes the effects of aging on the system and the relationship of aging to disease.  
Prerequisites: HLTH F100 with a C or higher.  
Lecture + Lab + Other: 3 + 0 + 0

HLTH F234  Administrative Procedures II  
4 Credits  
Office management and financial procedures used in medical offices. Includes medical financial recordkeeping systems and computerized office management systems. Includes ICD-9, CPT coding system, patient insurance billing/reimbursement procedures, the demonstration of computational skills in accounts payable/accounts receivable, and office management in the health care setting.  
Prerequisites: CIOS F150; HLTH F100; HLTH F132; placement in WRTG F111X.  
Lecture + Lab + Other: 3 + 2 + 0

HLTH F235  Medical Coding  
4 Credits  
The current procedural terminology (CPT) and the international classification of diseases (ICD) systems used in the medical setting. Examines the medical and legal uses of the CPT and ICT code systems in inpatient and outpatient medical settings, urgent care settings, billing departments and ancillary medical professions. Prepares students to take national certification exams.  
Recommended: HLTH F100; HLTH F132; HLTH F208; HLTH F234.  
Lecture + Lab + Other: 4 + 0 + 0
HLTH F236  Outpatient Health Care Reimbursement  
3 Credits  
Outpatient reimbursement issues including documentation, insurance carriers, schedules and payment profiles. Collection strategies and legal issues, and the importance of educating the patient to the financial policies of the practice.  
**Prerequisites:** HLTH F132; concurrent HLTH F234.  
**Lecture + Lab + Other:** 3 + 0 + 0

HLTH F237  Inpatient Health Care Reimbursement  
3 Credits  
Rules and regulations governing the reimbursement of inpatient and hospital coding. Includes HIPAA regulations, Medicare, Medicaid, third party billing, and the legal and ethical guidelines of inpatient billing.  
**Prerequisites:** HLTH F132; HLTH F135; HLTH F234.  
**Lecture + Lab + Other:** 3 + 0 + 0

HLTH F255  Phlebotomy Principles, Methods and Externship  
5 Credits  
This comprehensive lecture, lab, and externship course is designed to provide information covering phlebotomy technique, anatomy and physiology as it pertains to venipuncture, and lab testing. Quality control, quality assurance, universal precautions, and OSHA regulations will be reviewed. Specimen collection and proper specimen handling is an essential segment of successfully completing this course. This course includes 100 hours of practical experience. Upon completion, the student will have satisfied the educational requirements for national phlebotomy certification by the American Society of Clinical Pathologists. Placement into or completion of DEVM F055; Placement into or completion of WRTG F111X. Documentation of positive antibody titer for hepatitis B, current immunizations or titers to measles, mumps, rubella, varicella, flu shot and two 2-step PPD’s within the past year. Other specific immunizations as required by the the externship sites.  
**Prerequisites:** HLTH F122 or AHA BLS for healthcare provider CPR card and First Aid card.  
**Lecture + Lab + Other:** 2 + 1 + 7

HLTH F261  Medical/Dental Office Reception Practicum  
2 Credits  
Offered As Demand Warrants  
Provides the student with 80 hours of practicum work in a medical or dental office, with additional time required for meeting with the campus practicum coordinator. Students will be expected to perform any and all duties of a receptionist in a medical/dental care setting. Satisfies practicum experience requirement for Medical/Dental Reception certificate. May be used to partially satisfy practicum experience requirement of Medical Assistant A.A.S. degree certificate. Students part of the Medical Assisting program should take the MA F261 section of this course.  
**Prerequisites:** HLTH F122; enrollment by special permission only.  
**Recommended:** Students taking MA F261 should have passed MA F144 and students taking HLTH F261 should have passed HLTH F132 and HLTH F234.  
**Cross-listed with MA F261.**  
**Lecture + Lab + Other:** 0 + 0 + 6

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High Latitude Range Management (HLRM)

HLRM F120  History of Domesticated Alaskan Ungulates (a)  
1 Credit  
Offered Spring  
Review the history of domesticated ungulate populations, free-ranging and fenced systems, in Alaska beginning from the 1890s to present. Emphasis will be placed on traditional activities on the Seward Peninsula.  
**Prerequisites:** WRTG F111X.  
**Lecture + Lab + Other:** 1 + 0 + 0

HLRM F130  Research Field Logistics  
2 Credits  
Offered Summer  
Learn the skills, techniques, and equipment used in remote scientific fieldwork in Alaska. Course includes methods for processing and storing animal/plant tissue samples, orienteering, navigation, GPS, wilderness first aid, Arctic survival, bear safety, boat safety, as well as ATV, boat, and snowmachine operation, maintenance and repair.  
**Lecture + Lab + Other:** 1 + 3 + 0

HLRM F140  High Latitude Range Management (a)  
2 Credits  
Offered Fall  
Policies and terminology of range and range management specific to Alaska and the Arctic. Review current vegetation inventory techniques used by federal and state agencies. Identify and sample Alaska forage plants. Examine range production systems in Alaska for a variety of species; domesticated and wild. Development of a high latitude range management plan.  
**Prerequisites:** BIOL F104X; NRM F101.  
**Lecture + Lab + Other:** 1.5 + 0 + 1.5

HLRM F150  Alaskan Ungulate Husbandry (a)  
2 Credits  
Offered Summer  
Students will be introduced to management skills, facilities design and nutritional needs for domesticated ungulates in Alaska. Provides exposure and examines traditional knowledge combined with contemporary research in herding and husbandry for open range and fenced systems. Field trips to reindeer, elk, bison, and/or cattle operations will demonstrate husbandry techniques and data collection procedures.  
**Prerequisites:** HLRM F140.  
**Lecture + Lab + Other:** 1.5 + 0 + 1.5

HLRM F160  Meat Production  
2 Credits  
Offered Spring  
A study of the meat animal processing sequence. The production of meat-type domesticated ungulates in Alaska and the science and technology of their conversion to food, value-added products and by-products. A review of the current state regulations and methods on proper field slaughtering, and the preparation, handling and storage of meat will be introduced.  
**Prerequisites:** HLRM F140.  
**Lecture + Lab + Other:** 1.5 + 0 + 1.5
HLRM F170  Health Issues in Domesticated Ungulates
2 Credits
Offered Fall
Ruminant anatomy and physiology specific to high latitude ungulates. Overall health issues and problem solving techniques for domesticated ungulates, including a review of indicators for disease or parasitic infections. Vaccinations and Rx treatments; including use in food animals. Field necropsy techniques and blood and tissue collection procedures. State monitoring and identification policies.
Prerequisites: HLRM F150.
Lecture + Lab + Other: 1.5 + 0 + 1.5

HLRM F201  Field Techniques for Range Management
2 Credits
Offered Summer
Provides hands-on instruction in field and laboratory techniques in range evaluation for domesticated ungulates. Basic methods for sampling and studying grazing systems at the high latitudes will be introduced. Students will participate in data collection and analysis procedures as part of an independent research project.
Prerequisites: ABUS F155 or MATH F113X; HLRM F130; HLRM F140.
Lecture + Lab + Other: 1 + 3 + 0

HLRM F205  Report Writing in Range Management
2 Credits
Offered Fall
Provides the basic technical reporting methods, writing, and research skills necessary to analyze, interpret, and document field and laboratory data. Incorporating field data collected in HLRM F201 and the skills, knowledge, and techniques learned in other required courses, the student will produce a written technical report and make a presentation.
Prerequisites: WRTG F111X; HLRM F201.
Lecture + Lab + Other: 2 + 0 + 0

History (HIST)

HIST F100X  Modern World History  (s)
3 Credits
Significant aspects of modern world history, using either a chronological or an issues approach to be announced when offered. The chronological approach will examine major global developments in the twentieth century, while the issues approach will deal with such aspects of the modern world as revolutionary change, the interaction of peoples, ideology and the historical background of significant contemporary events.
Prerequisites: Placement in WRTG F111X.
Attributes: UAF Core Modern World History, UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

HIST F101  Western Civilization  (s)
3 Credits
Offered Fall
Origins and major political, economic, social and intellectual developments of western civilization to 1500.
Lecture + Lab + Other: 3 + 0 + 0

HIST F102X  Western Civilization Since 1500  (s)
3 Credits
Offered Fall
This course examines the origins and development of key social, political, economic and cultural trends in Western civilization from 1500 to the present. Topics to be examined include the Reformation, the scientific revolution, the Enlightenment, the French and Industrial revolutions, nationalism, imperialism, communism, fascism, World Wars I and II, and the Cold War. Students will learn how to read and interpret historical documents, how the interplay of historical factors conditions subsequent events and different approaches and perspectives for understanding the past.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

HIST F103  History of the Yukon-Kuskokwim Delta  (s, a)
3 Credits
Offered As Demand Warrants
The region's history beginning with oral traditions about the creation of the area, and ending with passage of the Alaska Native Land Claims Act in 1971. Concentrates on Yup'ik social, economic and educational changes, including both native and non native accounts. Offered only at the Kuskokwim Campus.
Lecture + Lab + Other: 3 + 0 + 0

HIST F105  Introduction to the History and Culture of the Seward Peninsula  (a)
1 Credit
Offered As Demand Warrants
Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archaeology, social anthropology, ecology and climatology. Eskimo and Euro-American cultures which have existed in western Alaska.
Cross-listed with ANTH F105.
Lecture + Lab + Other: 1 + 0 + 0

HIST F110  History of Alaska Natives  (s, a)
3 Credits
Offered Fall
The history of Alaska Natives from contact to the signing of the Land Claims Settlement Act.
Lecture + Lab + Other: 3 + 0 + 0

HIST F115  Alaska, Land and Its People  (s, a)
3 Credits
Offered Spring Even-numbered Years
A survey of Alaska from earliest days to present, its peoples, problems and prospects.
Lecture + Lab + Other: 3 + 0 + 0

HIST F121  East Asian Civilization  (s)
3 Credits
Offered Fall Even-numbered Years
Origin and development of the civilizations of China, Japan and Korea from the beginning to 1800, with emphasis on traditional social, political and cultural institutions.
Lecture + Lab + Other: 3 + 0 + 0
HIST F122X  East Asian Civilization  (s)
3 Credits
Offered Spring
This is a survey course on the history of East Asian civilizations from
1800 to the present. Multiple approaches to history such as political and
economic history will be employed, but the main focus of the course
will be intellectual history. Students will be asked to indentify broad
historical and ideological trends in modern East Asian history based on
the analysis of primary source data from the writings of governmental
officials, leaders of political movements, and influential intellectuals
in society. Current relations among East Asia countries will also be examined.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

HIST F131  History of the U.S.  (s)
3 Credits
Offered Fall
The discovery of America to 1865. Colonial period, revolution, formation
of the constitution, western expansion, Civil War.
Lecture + Lab + Other: 3 + 0 + 0

HIST F132X  History of the U.S.  (s)
3 Credits
Offered Spring
Surveys U.S. history from post-Civil War Reconstruction to the
present. It examines challenges faced by the nation as it grappled
with transformations and international crises that resulted from
industrialization, urbanization, immigration, expanded globalization,
economic crisis and two world wars. The U.S. emerged from World
War II as a super power, but found itself locked in a Cold War struggle
against communism that provided the backdrop to the second half of
the 20th century. It influenced cultural, social, political and economic
changes that continue to shape American life and foreign policy today.
This course develops critical thinking and writing skills: introduces the
methods, theories and approaches that inform historical interpretations
of this era; and provides opportunities to use qualitative and quantitative
data-- the primary source materials-- that historians use to defend their
interpretations and arguments.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

HIST F202  History of Women in America  (s)
3 Credits
Offered Fall Odd-numbered Years
A chronological approach to the history of women in America. Introductions to major issues of concern to historians of women, as well as different approaches utilized in analysis of women's past; consideration of multiracial backgrounds of American women.
Cross-listed with WGS F202.
Lecture + Lab + Other: 3 + 0 + 0

HIST F244  Movies: Mirror of the World  (s)
3 Credits
Offered As Demand Warrants
World history using the medium of film to highlight cultural, economic and political conditions of each country. Films will be from the USA, Mexico, Central America, South America, England, France, Russia, Turkey, India, China, Japan, Australia, Africa and the Arctic.
Lecture + Lab + Other: 3 + 0 + 0

HIST F275  Perspectives on History
3 Credits
Offered Fall
An introduction to the variety of historical approaches and to the "uses"
of history. (Course is required for history majors and should be taken
soon after declaring a History major as possible; non-majors are strongly
discouraged from taking this course.)
Lecture + Lab + Other: 3 + 0 + 0

HIST F305  Europe: 1789--1850  (s)
3 Credits
Offered Fall Even-numbered Years
The French Revolution, Napoleon, the Industrial Revolution, the
Revolutions of 1848, their impact on political, economic, social and
intellectual history.
Lecture + Lab + Other: 3 + 0 + 0

HIST F306  Europe: 1850--1900  (s)
3 Credits
Offered Spring Odd-numbered Years
The European Imperium: industrialization, nationalism, imperialism and
their impact on political, economic, social and intellectual history.
Lecture + Lab + Other: 3 + 0 + 0

HIST F315  Europe: 1900--1945  (s)
3 Credits
Offered Fall Odd-numbered Years
Europe through two world wars, the Russian Revolutions the depression,
the development of fascism, the evolution of Russian communism.
Lecture + Lab + Other: 3 + 0 + 0

HIST F316  Europe Since 1945  (s)
3 Credits
Offered Spring Even-numbered Years
Germany and problems of the peace, the Soviet Union and the satellites,
the Cold War, economic problems and recovery, European integration and
the common market, Europe and the world.
Lecture + Lab + Other: 3 + 0 + 0

HIST F325  The History of Sexuality  (s)
3 Credits
Offered Summer
The history of sexuality from a worldwide comparative perspective. Theories and debates about the history of sexuality in selected times and places, with an emphasis on the modern period.
Prerequisites: HIST F100X, WRTG F211X, WRTG F212X, WRTG F213X or
WRTG F214X.
Cross-listed with WGS F325.
Lecture + Lab + Other: 3 + 0 + 0

HIST F330  Modern China  (s)
3 Credits
Offered Fall Odd-numbered Years
From 1800 to the present: resistance to change, rebellion, reform,
revolution and the rise of the People's Republic.
Lecture + Lab + Other: 3 + 0 + 0

HIST F331  Modern Japan  (s)
3 Credits
Offered Spring Even-numbered Years
From 1600 to the present: change within tradition, rise to world power
and the position of Japan in the modern world.
Lecture + Lab + Other: 3 + 0 + 0
HIST F333 Foundations of Japanese History (s) 3 Credits
Offered Fall Even-numbered Years
The history of Japan from earliest times to 1600: the aristocratic culture of classical Japan, the rise of the samurai in medieval Japan, the "warring states" period and national unification. Myths, religion and philosophy, and culture, arts and literature will also be covered from a historical point of view.
Prerequisites: HIST F100X.
Lecture + Lab + Other: 3 + 0 + 0
HIST F361 Early American History (s) 3 Credits
Offered Fall Odd-numbered Years
An advanced survey that examines economic, political and social developments related to the establishment of European colonies, Indian-white relations, slavery, American Revolution, constitutional debate and the Early Republic through the War of 1812. Recommendations: HIST F131; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
HIST F362 History of the United States 1815-1877 (s) 3 Credits
Offered Spring Even-numbered Years
An advanced survey that examines economic, political and social developments related to Jacksonian America, western expansion, slavery and sectionalism, the Civil War and reconstruction to 1877. Recommendations: HIST F131; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
HIST F363 History of the United States 1877-1945 (s) 3 Credits
Offered Fall Even-numbered Years
An advanced survey that examines economic, political, and social developments related to Gilded Age America, progressive reform efforts, colonialism and the United States during two world wars. Recommended: HIST F132X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
HIST F364 History of the United States 1945 to Present (s) 3 Credits
Offered Spring Odd-numbered Years
An advanced survey course that examines economic, political and social developments related to the Cold War, Civil Rights movement, rise of a counter-culture, Vietnam War and its legacy, and America after the fall of Soviet Union. Recommended: HIST F132X; sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0
HIST F368 Topics in American Film History (s) 3 Credits
Offered As Demand Warrants
American film and how it shapes and warps popular perceptions of America's past. A historical contrast according to Hollywood with the views and interpretations of historians. Content will vary depending on the specific genre or period of focus, such as World War II, the Vietnam War, the Great Depression, the Cold War and development of the West, etc. Course may be repeated for credit when content varies.
Prerequisites: HIST F131 or HIST F132X; COJO F217X or COJO F308.
Cross-listed with FLPA F368; COJO F368.
Lecture + Lab + Other: 3 + 0 + 0

HIST F401 Renaissance and Reformation Europe (s) 3 Credits
Offered Fall Even-numbered Years
Political, economic and intellectual developments during the 15th and 16th centuries in Europe.
Lecture + Lab + Other: 3 + 0 + 0
HIST F402 Seventeenth- and Eighteenth-century Europe (s) 3 Credits
Offered Fall Odd-numbered Years
Political, social, economic, and cultural developments during the 17th and 18th centuries in Europe.
Lecture + Lab + Other: 3 + 0 + 0
HIST F404 Modern Scandinavia (W, s, a) 3 Credits
Offered Spring Odd-numbered Years
Scandinavia (Denmark, Finland, Iceland, Norway and Sweden) from the 19th century to the present: the development of parliamentary democracy and welfare systems, cooperation and neutrality, and Scandinavia's experience in the world wars. Stacked with ACNS F604.
Lecture + Lab + Other: 3 + 0 + 0
HIST F405 Modern Germany (s) 3 Credits
Offered As Demand Warrants
The history of Germany from 1848 to the present. Topics include German unification under Prussian leadership; the nature and problems of the Bismarckian Reich; the outbreak of World War I and the war's impact on Germany; the rise and fall of the Weimar Republic and the Third Reich; World War II and Germany's defeat; and the post-war division, reconstruction, and reunification of Germany. Special attention given to social developments in Germany.
Lecture + Lab + Other: 3 + 0 + 0
HIST F411 Environmental History (s, a) 3 Credits
Offered Spring Even-numbered Years
Discussion of significant works of environmental history. Cultural history of the landscape in world civilization with emphasis on Western Europe and North America. Discussion of interdisciplinary approaches to the history of environment and cooperative work across disciplines. Stacked with ACNS F611.
Lecture + Lab + Other: 3 + 0 + 0
HIST F414 Women and Gender in East Asian History (s) 3 Credits
Offered As Demand Warrants
An in-depth seminar on the history of East Asia, with a special emphasis on the experiences of women and on the issue of gender. This seminar will focus on the modern period, and on China and Japan especially, though other regions of East Asia may also be considered. Cross-listed with WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F100X.
Recommended: HIST F122X, HIST F275.
Lecture + Lab + Other: 3 + 0 + 0
HIST F424  Topics in Women's History  (s)
3 Credits
Offered As Demand Warrants
An in-depth seminar on a specific topic of current interest. Topics may change and may cover the history of European or American women from the 18th century to the present.
Prerequisites: Junior standing.
Cross-listed with WGS F424.
Lecture + Lab + Other: 3 + 0 + 0

HIST F429  History of the Modern Middle East  (s)
3 Credits
Offered As Demand Warrants
An advanced survey of the modern Middle East from the 19th century to the present. It will focus on the birth of the modern Middle Eastern states out of the collapse of the Ottoman Empire and the Qajar Dynasty, and the impact of the Western colonial powers on Middle Eastern societies and culture. Special attention will be given to the birth of modern secular Turkey, Egypt under military governments for the past half-century and the Iranian Revolution of 1979, the partition of Palestine. The origins of the Jewish state and the impact of the ongoing Israeli-Palestinian conflict on the political dynamics of the entire Islamic world will also be carefully examined. The contestation between secular nationalism and the religious nationalisms as well as trans-national Islamic movements will also be given special attention. The impact of radical Islam on the other non-Western countries will be discussed.
Lecture + Lab + Other: 3 + 0 + 0

HIST F434  Topics in History  (s)
3 Credits
Offered As Demand Warrants
An in-depth seminar on various topics in History. Approach will vary depending on the subject of the study, but will emphasize reading, critical analysis and writing on a major issue in history. Content will vary to take advantage of different directions in history, such as cultural, intellectual or economic history. Course may be repeated for credit when content varies.
Lecture + Lab + Other: 3 + 0 + 0

HIST F442  History of the American Military  (s)
3 Credits
Offered Fall
The military's place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves.
Prerequisites: HIST F275.
Cross-listed with MILS F442.
Lecture + Lab + Other: 3 + 0 + 0

HIST F445  History of the American West  (s)
3 Credits
Offered Fall Even-numbered Years
Seminar with emphasis on readings and analysis of primary and secondary sources dealing with the American West to present. Major themes include historiography, expansion, the Federal government, environment, ethnicity and economic development.
Lecture + Lab + Other: 3 + 0 + 0

HIST F446  American Indian History  (s)
3 Credits
Offered as Demand Warrants
Seminar with emphasis on readings and analysis of primary and secondary resources related to American Indians from the pre-contact era to present. Major themes include historiography, inter-cultural relations, subsistence and environment, federal policy and contemporary issues.
Lecture + Lab + Other: 3 + 0 + 0

HIST F449  History of Alaska  (W, s, a)
3 Credits
Offered Fall
Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial and military Alaska, statehood, Alaska Native Claims Settlement Act of 1971 and the Alaska National Interest Lands Act of 1980.
Stacked with HIST F662; ACNS F661.
Lecture + Lab + Other: 3 + 0 + 0

HIST F455  Military History  (s)
3 Credits
Offered Fall Even-numbered Years
Warfare from classical times to the present: the interrelationships of warfare and society, the role of technology and the development of tactics and strategy.
Prerequisites: Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

HIST F464  Soviet and Post-Soviet Russia  (s, a)
3 Credits
Offered Fall Odd-numbered Years
This course covers Russian history from the reign of Peter the Great (1682-1725) until the collapse of the Tsarist regime in February 1917. Topics will include Russia's complex relationship with Western Europe, the challenges posed by modernization, the Russian Empire as a multinational state, and the emergence of the revolutionary movement.
Stacked with HIST F663; ACNS F663.
Lecture + Lab + Other: 3 + 0 + 0

HIST F465  Imperial Russia, 1700-1917  (s, a)
3 Credits
Offered Fall Odd-numbered Years
This course covers Russian history from the reign of Peter the Great (1682-1725) until the collapse of the Tsarist regime in February 1917. Topics will include Russia's complex relationship with Western Europe, the challenges posed by modernization, the Russian Empire as a multinational state, and the emergence of the revolutionary movement.
Stacked with HIST F663; ACNS F663.
Lecture + Lab + Other: 3 + 0 + 0

HIST F466  American Indian History  (s)
3 Credits
Offered as Demand Warrants
Seminar with emphasis on readings and analysis of primary and secondary resources related to American Indians from the pre-contact era to present. Major themes include historiography, inter-cultural relations, subsistence and environment, federal policy and contemporary issues.
Lecture + Lab + Other: 3 + 0 + 0

HIST F469  History of Alaska  (W, s, a)
3 Credits
Offered Fall
Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial and military Alaska, statehood, Alaska Native Claims Settlement Act of 1971 and the Alaska National Interest Lands Act of 1980.
Stacked with HIST F662; ACNS F661.
Lecture + Lab + Other: 3 + 0 + 0
HIST F467 Political Development in Latin America and the Caribbean (W, s)
3 Credits
Offered Fall Odd-numbered Years
Exploration of major issues and concepts in the development and governances of modern Latin America and the Caribbean region, including the legacies of colonialism, revolution, military rule, economic challenges and the quest for democratic stability. Includes a historical overview of the region and cases drawn from the Caribbean, Mexico, Central and South America.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F275.
Recommended: SPAN F221.
Cross-listed with PS F467.
Lecture + Lab + Other: 3 + 0 + 0
HIST F475 Historiography Capstone (W, s)
3 Credits
Offered Fall
Seminar discussions and lectures introduce philosophical approaches to history. Examines various methodological approaches to historical inquiry. Includes the nature of historical evidence, questioning of the role of truth and objectivity in history, an examination of the role of the historian in interpreting historical evidence, and different interpretations of historical events and actions. Designed for history majors and minors, and graduate students seeking to conduct historical research.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F275; history major with senior standing.
Stacked with ACNS F675.
Lecture + Lab + Other: 3 + 0 + 0
HIST F476 Senior Thesis Capstone (O, W, s)
3 Credits
Offered Spring
Preparation and writing of a senior thesis using primary research materials on a topic of the student’s choosing.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F475.
Lecture + Lab + Other: 3 + 0 + 0
HIST F481 Polar Exploration and Its Literature (s, a)
3 Credits
Offered Spring Even-numbered Years
A survey of polar exploration efforts of all Western nations from A.D. 870 to the present and a consideration of the historical sources of this effort.
Stacked with HIST F681; ACNS F681.
Lecture + Lab + Other: 3 + 0 + 0
HIST F483 20th-century Circumpolar History (W, s, a)
3 Credits
Offered Spring Even-numbered Years
A comparative history of the circumpolar North, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze and scientific research in the Arctic.
Stacked with HIST F683; ACNS F683.
Lecture + Lab + Other: 3 + 0 + 0
HIST F490 Researching and Writing Northern History (W, a)
3 Credits
Offered Spring Odd-numbered Years
Exploration of the craft and methodology of historical research in the North. Course may be repeated for credit when content varies.
Stacked with ACNS F690.
Lecture + Lab + Other: 1 + 3 + 0
HIST F600 Perspectives on the North (a)
3 Credits
Offered Fall
Basic knowledge of the circumpolar North—the social, economic, political and scientific facets of Northern life. Consideration of major cultural groups of the North and their histories, the environmental settings and patterns of settlement and development in Northern regions and systems of governance in different Northern countries. Broad overview of the major policy issues of the North in education, justice, health care, and environmental and wildlife protection. Course is also available online.
Cross-listed with ACNS F660.
Lecture + Lab + Other: 3 + 0 + 0
HIST F662 History of Alaska (a)
3 Credits
Offered Fall
Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial and military Alaska, statehood, Alaska Native Claims Settlement Act of 1971 and the Alaska Native Interest Lands Act of 1980.
Cross-listed with ACNS F661.
Stacked with HIST F461.
Lecture + Lab + Other: 3 + 0 + 0
HIST F663 Imperial Russia, 1700-1917 (a)
3 Credits
Offered Fall Odd-numbered Years
This course covers Russian history from the reign of Peter the Great (1682-1725) until the collapse of the Tsarist regime in February 1917. Topics will include Russia's complex relationship with Western Europe, the challenges posed by modernization, the Russian Empire as a multinational state, and the emergence of the revolutionary movement.
Prerequisites: Graduate standing.
Cross-listed with ACNS F663.
Stacked with HIST F463.
Lecture + Lab + Other: 3 + 0 + 0
HIST F664 Soviet and Post-Soviet Russia (a)
3 Credits
Offered Fall Even-numbered Years
Russia from the 1917 Revolution to the present. This course examines the attempts to build a socialist utopia in the former Russian empire and its impact on the peoples of that region and the modern world. We will consider the political, economic, social and cultural nature of the Soviet state. Major themes include cultural transformation, industrialization, Stalinism, the Soviet Union as a multi-national empire, the Cold War, the collapse of the Soviet state, and the new Russia of Yeltsin and Putin.
Prerequisites: Graduate standing.
Cross-listed with ACNS F664.
Stacked with HIST F464.
Lecture + Lab + Other: 3 + 0 + 0
**HIST F681**  Polar Exploration and Its Literature  (a)  
3 Credits  
Offered Spring Even-numbered Years  
A survey of polar exploration efforts of all Western nations from A.D. 870 to the present and a consideration of the historical sources of this effort.  
**Prerequisites:** Graduate standing.  
Cross-listed with ACNS F681.  
Stacked with HIST F481.  
Lecture + Lab + Other: 3 + 0 + 0  

**HIST F683**  20th-century Circumpolar History  (a)  
3 Credits  
Offered Spring Even-numbered Years  
A comparative history of the circumpolar North, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze and scientific research in the Arctic.  
**Prerequisites:** Graduate standing.  
Cross-listed with ACNS F683.  
Stacked with HIST F483.  
Lecture + Lab + Other: 3 + 0 + 0  

**HIST F699**  Thesis  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

### Homeland Security and Emergency Management (HSEM)  

**HSEM F110**  Personal Preparedness  (s)  
3 Credits  
Offered Fall  
Students will gain the ability to recognize pending crises and the skills to successfully manage events, using preparedness theory. Students will be able to utilize practical applications should a disaster occur. They will then take all of the preparedness skills they have learned and develop a Personal Preparedness Plan.  
Lecture + Lab + Other: 3 + 0 + 0  

**HSEM F120**  Introduction to Emergency Management  
3 Credits  
Offered As Demand Warrants  
This course will introduce students to the vocabulary and core components of emergency management. The important of this growing field will be discussed. The field is changing rapidly as a result of an increase in frequency, complexity and severity of man-made, natural and technological disasters. Historical events that have changed the nature of the field will be examined and students will be introduced to the leadership and management roles that have emerged as a result of these events taking place.  
Lecture + Lab + Other: 3 + 0 + 0  

**HSEM F121**  Introduction to Homeland Security  
3 Credits  
Offered As Demand Warrants  
This course will introduce students to the vocabulary and important components of homeland security. We will discuss the importance of the agencies associated with homeland security and their interrelated duties and relationships. Historical events that affect homeland security will be examined. State, national and international laws affecting homeland security will be explored. The most critical threats confronting homeland security will be examined.  
Lecture + Lab + Other: 3 + 0 + 0  

**HSEM F223**  Terrorism: A Global Threat  
3 Credits  
Offered As Demand Warrants  
This course will investigate the historical origins of global terrorism, the major contemporary terrorist organizations (foreign and domestic), their ideological motivations and their methodologies for employing terror. It will also explore the threats posed to the United States and the West in terms of national security and the economy. An in-depth examination and evaluation of several case studies of terrorist acts will be made. The primary focus of this course will be on terrorist organizations and their acts of terror.  
**Prerequisites:** HSEM F120 or HSEM F121.  
Lecture + Lab + Other: 3 + 0 + 0  

**HSEM F225**  Intelligence Analysis and Security Management  
3 Credits  
Offered As Demand Warrants  
This course will examine the history of intelligence gathering and espionage in the United States. A succinct study and comparative analysis of intelligence collection methods of other nations will also be made. An in-depth study of key U.S. intelligence agencies, their collection methodologies, and their effect upon national security will be examined.  
**Prerequisites:** HSEM F120 or HSEM F121.  
Lecture + Lab + Other: 3 + 0 + 0  

**HSEM F227**  Transportation and Border Security  
3 Credits  
Offered As Demand Warrants  
This course provides an overview of modern border and transportation security challenges, as well as different methods employed to address these challenges. The time period from post 9-11 to the present is covered. Topics explored include those associated with border and transportation infrastructure security; seaports, ships, aircraft, airports, trains, train stations, trucks, highways, bridges, rail lines, pipelines and buses. The course will include an exploration of technological solutions employed to enhance security of borders and transportation systems. Discussions will include such topics as the legal, economic, political and cultural concerns and impacts associated with transportation and border security.  
**Prerequisites:** HSEM F120 or HSEM F121.  
Lecture + Lab + Other: 3 + 0 + 0  

**HSEM F231**  The Threat of Weapons of Mass Destruction  
3 Credits  
Offered As Demand Warrants  
In a post 9/11 environment, concerns surrounding the potential use of weapons of mass destruction have been an ever increasing concern. This course is intended to serve as an introduction to the study and history of weapons of mass destruction as a tool of terrorism.  
**Prerequisites:** WRTG F111X.  
Lecture + Lab + Other: 3 + 0 + 0
HSEM F233  Critical Infrastructure Protection  
3 Credits  
Offered As Demand Warrants  
This course provides tools and techniques to students who desire to increase their knowledge, skills and abilities in the protection of critical infrastructure elements. The course focuses on the predominant infrastructure sectors such as water, energy, SCADA, power, telecommunications, internet and cyber infrastructure.  
Prerequisites: HSEM F120 or HSEM F121.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F271  Fiscal Management for Emergency Management Operations  
3 Credits  
Offered Fall  
This course is about accounting for public organizations such as fire, police and similar functions of local governments. Accounting is an essential function in all organizations. This course is from a user’s perspective- understanding accounting reports rather than preparing them. The major topics covered include: understanding financial reports, budgeting preparation, governmental accounting basics, grant writing and management and ethics.  
Prerequisites: Sophomore standing or higher; placement, concurrent enrollment or completion of MATH at the F100-level or above.  
Cross-listed with ACCT F271.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F301  Principles of Emergency Management and Homeland Security  
3 Credits  
Offered As Demand Warrants  
The course provides a foundational perspective as to how our present federal emergency management and homeland security structure emerged with emphasis placed on the characteristics, functions, and resources of its integrated systems. This course additionally focuses on the principles and practices of homeland security and emergency management at the local, state and federal levels.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F402  Incident Command for Emergency Medical Services  
3 Credits  
Offered As Demand Warrants  
Students will practice use of Incident Command System in coordination with other public safety responders. This course will present scenarios requiring responders to structure their EMS resources within the guidance of NIMS ICS, as appropriate to the needs of the different incident types. Students will demonstrate the implementation of EMS components in an ICS system at incidents. This course is designed to teach the implementation of ICS in day-to-day EMS operations.  
Prerequisites: HSEM 301.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F403  Public Health in Emergencies  
3 Credits  
Offered As Demand Warrants  
This course focuses on the role public health plays in the disaster lifecycle and emergency management. Public Health is a relatively new concept in emergency management. Topics including public health’s role in fostering community resilience, medical intelligence and disease monitoring, behavioral health recovery, ethical considerations and planning for vulnerable and special needs populations are examined.  
Prerequisites: HSEM F301.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F404  Public Safety Instruction  
3 Credits  
Offered As Demand Warrants  
This course provides the student with the tools to help foster public education in their community based on the different resources available to citizens. These resources often include programs at the federal, state, and local governments. Planning for the public safety community, including diverse learning populations, will be also discussed.  
Prerequisites: HSEM F301.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F405  Introduction to Emergency Management Exercise Design  
3 Credits  
Offered As Demand Warrants  
This course examines exercise design, evaluation, and development. The course will focus on developing the knowledge and skills that are imperative to implementing a Homeland Security Exercise Evaluation Program (HSEEP) compliant exercise. The class will also design and develop a table top exercise to be executed as a class project at the end of the semester. Lastly, the course will emphasize the importance of incorporating emergency exercise planning to effectively prepare and respond to disasters of all types and magnitudes.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F406  Comparative Homeland Security  
3 Credits  
Offered As Demand Warrants  
The purpose of this course is to help students develop an understanding of the homeland security and counterterrorism methods utilized by other countries. To achieve this goal, the course will examine several different countries and compare the policies and strategies they have developed to protect their citizens from unique global threats. This course will help broaden student understanding of homeland security in today’s global environment.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F407  Comparative Emergency Management  
3 Credits  
Offered As Demand Warrants  
This course will focus on examining regional and global responses to various types of disasters. Topics covered will include the importance of regional collaboration between nations in disaster preparedness, mitigation, response, and recovery. Additionally, the roles that regional partnerships play in disaster mitigation will be examined, as well as issues concerning the requirements to sustain collaborative efforts between nations in the 21st century.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.  
Lecture + Lab + Other: 3 + 0 + 0
HSEM F408  Homeland Defense and Security
3 Credits
Offered As Demand Warrants
The purpose of this course is to provide students with a overview of the categories of military operations (other than war) that require homeland defense and security. A comparative approach will be utilized to compare the U.S. with other countries which use their respective militaries for smaller scale contingencies both internal and external to their borders.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F412  Emergency Planning and Preparedness
3 Credits
Offered Fall or Spring
This course will examine the concepts of developing and writing an emergency operations plan and the elements necessary for inclusion in the plan (all-hazards risk analysis). Students will transition through the process of identifying hazards, creating plans and developing a program which specifically addresses planning and preparedness objectives.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F415  Cyberdomain in the 21st Century
3 Credits
This is meant to be a foundational cyber course. The cyber domain is misunderstood and the characteristics of the cyber domain are not applied in a coherent manner. This course will provide a theoretical and practical overview of cyber as an operating domain, cyber security as a protective requirement and cyber power as a means to use cyber assets in conflict. This course is designed to teach undergraduate students the history of the cyber domain, practical application of the principles of cyber domain and understand the context in which the cyber domain could influence current and future conflicts. The course addresses a range of topics to provide the student solid overall theoretical foundation of cyber as a domain, a source of national security interest and exposure to the characteristics of cyber commons. The course will provide analysis of case studies, readings, and strategy to enhance understanding of cyber security, cyber power and cyber enterprise. Persons who want careers in Homeland Security or desire knowledge of cyber, cyber domain and the use of cyber functions in the future will obtain historical, theoretical and application knowledge and concepts.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F416  Cybersecurity Management
3 Credits
Offered As Demand Warrants
This focuses on developing an understanding of the concepts, trends and strategies associated with cyber security and managing the risk associated with information systems. This course will enable managers to understand risks associated with information technology, know how to develop compensating controls or mitigations and introduce how to implement them. These skills will be developed in two operating contexts: planning for normal operations and during and emergency event/incident. Planning process, mitigation strategies, detection and recovery associated with cyber security and risk management will be covered.
Prerequisite: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F417  Cybersecurity Resiliency
3 Credits
Offered As Demand Warrants
This course focuses on the challenges faced by organizational leadership resisting, responding and recovering from cyber-attacks impacting business critical data. This course will further the understanding of a new and demanding career field emerging within the emergency management and homeland security fields. Without the knowledge of how to build a cyber security resilient organization, the future emergency manager will lack critical skills.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F418  Cybercrime, Fraud and Law
3 Credits
Offered As Demand Warrants
This course provides an introduction to cybercrime. The history of cybercrime in the U.S. and the resulting law and regulatory environment it has resulted in are covered. Techniques and resources for investigating cyber incidents will be presented, as well as the methods used to commit malicious or criminal acts. Active elements of the cyber underworld, including organized crime, terrorist and state sponsored activity, will be discussed. Finally students will become familiar with legal processes they may find themselves a part of, litigation, depositions and expert reporting.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F423  Disaster Response Operations and Management
3 Credits
Offered As Demand Warrants
The purpose of this course is to develop an understanding of the principles that promote effective disaster response and recovery operations after disasters. To achieve this goal, the course will examine the nature of disasters as well as the roles and responsibilities of various actors involved in emergency management and homeland security. Various problems associated with response and recovery operations will be identified and discussed with special emphasis on the role of technology and communications coordination.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F434  All-hazards Risk Analysis
3 Credits
Offered Fall
This course covers risk analysis and assessment from an All-Hazards emergency management and homeland security perspective. Students will explore vulnerability and risk assessment methodologies for natural, man-made as well as technological disasters/events and develop an understanding of the processes used in identifying and quantifying vulnerabilities in a system (e.g., a physical facility such as a chemical plant, or an infrastructure component such as a power plant).
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0
HSEM F439  Supervising Emergency Services
3 Credits
This course is intended for upper division students not yet working in the emergency services field as well as seasoned fire officers seeking a structured examination of issues relating to supervision of firefighters and emergency environment. Topics include a review of federal laws, labor relations, coaching, counseling and disciplinary action, managing conflict, motivation, stress management, time management and group dynamics. This course will be conducted in seminar format using a flipped classroom approach, in which most content is presented between class sessions and synthesis of information occurs during facilitated class discussions. This course aligns with the National Fire Academy Fire and Emergency Services Higher Education model core curriculum.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F440  Advanced Principles of Fire Service Administration
3 Credits
The class will build a strong base of knowledge for upper-division students not yet working in the emergency services field as well as appeal to seasoned chief fire officers. Topics include community risk management, strategic planning, labor relations, leadership and visioning, managing change, politics, organizational culture and data analysis. This course aligns with the United States Fire Administration (USFA) Fire and Emergency Services Higher Education Curriculum.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 0 + 0 + 0

HSEM F445  Business Continuity and Crisis Management (O/2, W)
3 Credits
Offered As Demand Warrants
The course serves as an introduction to crisis management and organizational continuity from a private sector business crisis and continuity management partnership perspective. The topics include comprehensive emergency management, public and private roles and partnerships for emergency and crisis management, the risk management process, strategic crisis management, contingency planning, training and exercises, emergency response, business continuity and recovery, the role of the crisis management team, and crisis communication.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; HSEM F301 or AIS F310 or AIS F316 or BA F360.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F452  Internship in Emergency Management (W)
3 Credits
Offered As Demand Warrants
A supervised practical work experience to enable students to apply their course work in a fire department or closely related field of emergency services. Admission dependent upon approved sponsorship arrangements. E.M. degree major; upper division standing.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; B.
Recommended: Four semesters of bachelor core; business administration courses.
Lecture + Lab + Other: 0 + 6 + 0

HSEM F456  Leadership in Dangerous Contexts (W)
3 Credits
Offered As Demand Warrants
This course focuses on the challenges faced by those who serve as leaders during crisis and emergency circumstances. During emergency circumstances, leading others, being able to influence and motivate them during crisis is critical. Topics including leadership and followership, crisis decision making, fear and emotion and the unique circumstances of an emergency manager/homeland security professional are examined.
Prerequisites: HSEM F301; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Cross-listed with LEAD F456.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F467  Current Topics in Public Safety
3 Credits
Offered As Demand Warrants
This course examines current public safety topics with regards to relevant trends and practices. Topics of interest may include militarization of the police, mass shootings, police-community partnerships, technology, media relations, and transparency.
Prerequisites: HSEM F301.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F601  Legal Aspects of Homeland Security and Emergency Management
3 Credits
Offered Fall
Homeland security and emergency management (HSEM) are heavily regulated by US Code, executive agency guidelines and various federal and state laws and regulations. Participants in emergency planning and execution, are, themselves, subject to myriad laws and regulations while executing their response functions but also in the way they coordinate and interact with other responders whose authorities may differ from their own. This course examines the applicable statutory, regulatory and policy aspects regulating HSEM. It begins with an overview of the Constitution, separation of powers and federalism- the foundation that defines the legal basis for federal, state, tribal and local action before, during and after emergency and contingency management. With this background, the course focuses on relevant statutes such as the Stafford Act, the Economy Act Insurrection Act, Posse Comitatus Act, and those relating to governmental and individual liability/defenses while performing emergency and contingency management.
Prerequisites: Must be admitted to the MSDM program; or permission of the MSDM program director.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F603  Disaster Management Policy
3 Credits
Offered Fall
This course will provide context for and contemporary coverage of the fields of disaster management and homeland security. Emphasis will be placed on the role of persons at all levels; federal, state and local. This can include scientists, engineers, civil and military, elected/appointed officials and first responders. The course will explore how social science research can be usefully applied to policy development and everyday practice. Students will discuss and review public policy, organizational management and leadership issues they will face as future practitioners and leaders in the field.
Prerequisites: Must be admitted to MSDM program; or permission of the MSDM program director.
Lecture + Lab + Other: 3 + 0 + 0
HSEM F605  Community Planning in Emergency Management  
3 Credits  
Offered Spring  
This course will teach students how community and urban planning principles affect the homeland security and emergency management enterprise. This class is designed with both the traditional emergency manager and urban/community planner in mind to provide a wider perspective as to the larger considerations of urban and community planning in the planning of preparedness. Students will be taught the application of urban community planning methodologies, policies, programs and activities in the context of emergency management. This is an advanced class with the assumption that students have a foundational understanding of basic emergency management and/or homeland security.  
Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F607  Vulnerability and Protection  
3 Credits  
Offered Fall  
This course examines security as a discipline and responsibility. The key focus of security is the protection of assets, whether in the public or private sector. It also includes management principles and concepts that practitioners can use to develop defensible and resilient operations, communities and businesses. The course explores the relationship of security to vulnerability and its role in the overall management of risk. It delves into the functions and responsibilities of security practitioners in public and private organizations, and broaches key aspects of institutional security concerns, including control of access, terrorist attack, critical infrastructure protection, insider threats and workplace violence. The course touches on the evolving nature of the homeland security enterprise and of protective concerns within a global context.  
Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F609  Human Security  
3 Credits  
Offered Summer  
This course introduces and reviews the major elements of human security. The term 'human security' provides a human-centric approach to understanding, enhancing and sustaining the security of the individual, as well as our families, communities and nation. A human-centric framework shifts the lens from viewing man-made and natural security challenges – such as 9/11, the Boston Marathon bombing, Hurricane Katrina, and Avian Flu and Ebola – as event – or government-centric. Students will examine traditional security influencers, such as public and mental health, climate change, population and pathogen migration, side by side with traditional national and homeland security. The essential question addressed in this course: by focusing on people as the core– holistically, in terms of cause, effect and a change-agents– do people become solution-enablers rather than objects demanding security and response resources?  
Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F613  International Disaster Management  
3 Credits  
Offered As Demand Warrants  
This course serves as an overview to international disaster management (IDM) addressing the complex and interrelated issues of disasters in a global context. The course will explore historical, socio-economic, risk, hazard, response, preparedness and recovery aspects of international disasters. Special emphasis will be placed on the understanding of those organizations and agencies which play a prominent role in the international disaster management arena.  
Prerequisites: Must be admitted to the MSDM program; or permission of the MSDM program director.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F632  Project Management  
3 Credits  
Offered As Demand Warrants  
This course is designed to cover key components of project management fundamentals with emphasis on the project life cycle, project definition, project schedule and cost management, human resource allocation and the challenges facing project managers in every industry. We will focus on concepts, theories and best practices, while discussing managing and leading project teams in complex environments.  
Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program director.  
Cross-listed with MBA F632.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F665  Strategic Collaboration  
3 Credits  
Offered As Demand Warrants  
This course is designed to explore the techniques of collaboration and communication and their strategic use in managing contemporary organizations. Students will identify their own communication style and how to deploy it in various managerial situations. Topics will include exploring individual personality type and the effect of type on collaboration style, identifying the purposes for types of communication, conflict and collaboration, the presentation of data and results. Emergency communication will also be explored. Students will work on improving practical skills such as listening, writing, and creating and delivering presentations.  
Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program manager.  
Cross-listed with MBA F665.  
Lecture + Lab + Other: 3 + 0 + 0

HSEM F690  Security and Disaster Management  
3 Credits  
Offered Spring  
This course serves as the capstone course for the security and disaster management degree. This course should be taken near the end of the students’ graduate program. This course will focus on the integration of both security and disaster management in a complex globalized environment. The course will explore touch points for public and private partnerships, organizing for effective security and disaster management solutions and the development of effective policies for both the public and private sectors.  
Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.  
Lecture + Lab + Other: 3 + 0 + 0
Honors Program (HONR)

HSEM F692  Security and Disaster Management Seminar  
3 Credits  
Offered Summer  
This course is designed to bring Homeland Security and emergency management topics into the classroom as necessary. Such topics might include international security, disaster logistics or disaster economics. Additional topics will arise out of current events. This course may be taken 2 times as topics change.  
Prerequisites: Must be admitted to the MSDM program; or permission of MSDM program director.  
Lecture + Lab + Other: 3 + 0 + 0

Honors Program (HONR)

HONR F101  Introduction to the Honors Program  
1 Credit  
Offered Fall  
This course explains the services provided by the University in general and the Honors Program specifically and how to best achieve goals in this academic setting. Student explores personal interests, strengths and weaknesses. Culminates in the development of an academic plan for a four-year degree program at UAF as well as a personal growth and development plan for the student's admission to the UAF Honors Program.  
Lecture + Lab + Other: 1 + 0 + 0

HONR F201  Methods of Inquiry  
3 Credits  
Offered Fall and Spring  
This course introduces the student to epistemology, the theory of knowledge, and provides a broad overview of research methods from the perspectives of the humanities, social sciences and natural sciences. The course content provides a foundation for the Honors student who will be developing independent research of scholarly investigations in their junior and senior years.  
Prerequisites: admission to the Honors Program; WRTG F211X, WRTG F212X, WRTG F213X, WRTG F214X, COJO F131X or COJO F141X.  
Lecture + Lab + Other: 0 + 0 + 0

HONR F290  Honors Reading Seminar  
2 Credits  
Selected readings in a variety of disciplines. Students provide written reflections, respond to specific questions on the books, and meet to discuss the books. May be repeated for credit.  
Prerequisites: WRTG F111X; enrollment in the Honors Program.  
Lecture + Lab + Other: 2 + 0 + 0

HONR F301  Honors Interdisciplinary Seminar  
3 Credits  
Offered Fall and Spring  
Honors students will explore a problem of challenge of national or international significance from the perspective of the natural sciences, social sciences, and humanities. Students will be expected to research information and present it, to lead discussions, to propose additional speakers and readings, and to propose ways to address the problem.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; admission to the Honors Program.  
Lecture + Lab + Other: 0 + 0 + 0

HONR F311  Honors Interdisciplinary Seminar  
3 Credits  
Offered Fall and Spring  
This course provides interdisciplinary perspectives of the humanities, social sciences, and natural sciences. Students will be expected to research information and present it, to lead discussions, to propose additional speakers and readings, and to propose ways to address the problem.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; admission to the Honors Program.  
Lecture + Lab + Other: 0 + 0 + 0

HONR F381  Honors Capstone Development  
1 Credit  
The single greatest part of the Honors education at UAF is the student's capstone project, which uniquely defines them as a scholar. In recognition of the value of the capstone project, and to support each student's goal to successfully complete their capstone project, the sequence of Honors Capstone courses is recommended. This course is the first in the sequence. Students in this course will develop their capstone proposal and by the end of the course will be fully prepared to begin their capstone projects.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F141X or COJO F131X; enrollment in the Honors Program.  
Recommended: Honors sections of WRTG F211X or WRTG F213X and of COJO F141X.  
Lecture + Lab + Other: 1 + 0 + 0

HONR F382  Honors Capstone Support  
1 Credit  
The single greatest part of the Honors education at UAF is the student's capstone project, which uniquely defines them as a scholar. In recognition of the value of the capstone project, and to support each student's goal to successfully complete their capstone project, the sequence of Honors Capstone courses is recommended. This course is the second in the sequence. Students in this course will present regular progress reports and prepare (at least) one abstract at the level of a presentation at a regional or national meeting; by the completion of the course, each student will have made significant advancement towards the completion of their capstone project. This course may be repeated twice for credit.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F141X or COJO F131X; HONR F381; enrollment in the Honors Program.  
Recommended: Honors sections of WRTG F211X or WRTG F213X and of COJO F141X.  
Lecture + Lab + Other: 1 + 0 + 0

HONR F383  Honors Capstone Seminar  
1 Credit  
The single greatest part of the Honors education at UAF is the student's capstone project, which uniquely defines them as a scholar. In recognition of the value of the capstone project, and to support each student's goal to successfully complete their capstone project, the sequence of Honors Capstone courses is recommended. This course is the last in the sequence. Students in this course will present their work to an audience of their peers, and practice the skills of posing substantive questions to speakers outside their own fields.  
Prerequisites: HONR F381; HONR F382; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F141X or COJO F131X; enrollment in the Honors Program.  
Recommended: Honors sections of WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X and of COJO F141X.  
Lecture + Lab + Other: 1 + 0 + 0

HONR F390  Liability and Values  
1 Credit  
The study of standards of conduct and moral judgement. The professional, moral and ethical responsibilities of the individual to employers, employees and society will be examined.  
Prerequisites: Sophomore standing; permission of the Honors Director or instructor.  
Lecture + Lab + Other: 3 + 0 + 0
Human Services (HUMS)

Lecture + Lab + Other:

HUMS F101 Introduction to Human Services
3 Credits
Offered As Demand Warrants
Provides an overview and orientation for individuals who have either started or are exploring human service careers. Designed for entry level behavioral health providers with an emphasis in understanding social service systems in rural and frontier Alaska. Learners will consider the theoretical foundations of the helping process both personal and external-driven while setting a career path that builds on individual strengths. Students should come away knowing their current worker competencies and those yet to be developed. Strongly encourage students to be accepted into the Human Services Degree Program. Recommended: Should be taken within the first academic year when possible.
Lecture + Lab + Other: 3 + 0 + 0

HUMS F102 Standards of Practice
2 Credits
Designed to provide an integrative approach for ongoing development of critical thinking skills, best practices evaluation, and application of skills based competencies. Students will be challenged to integrate their learning from any previous human service or related training and education, past and present work settings as well as life experiences. This process will be facilitated through the development of a professional portfolio, collaborative group learning, class discussions and the use of blended learning approaches. Recommended: This course should be taken as soon as possible upon acceptance into the Human Services Program.
Lecture + Lab + Other: 2 + 0 + 0

HUMS F105 Personal Awareness and Growth
2-3 Credits
Interpersonal and intrapersonal communication explored. Personal growth process presented from a holistic perspective. Focus will identify opportunities for personal enrichment through increased awareness of self and others. Lecture + Lab + Other: 2-3 + 0 + 0

HUMS F117 Math Skills for Human Services
1-3 Credits
Offered As Demand Warrants
Computation involving percentages, estimation, problem-solving, reading and creating graphs and tables, data organization and interpretation. Applications of computational skills will be emphasized. Cross-listed with ECE F117.
Lecture + Lab + Other: 1-3 + 0 + 0

HUMS F120 Cultural Diversity in Human Services
3 Credits
Offered Spring
The impact of culture on the delivery of human services including Alaska Native cultures; examination of relationship of multicultural and multi-ethnic concepts. Issues of age, class, disablement, race, gender and sexual orientation will also be discussed. Student exploration of personal values and cultural world view included.
Lecture + Lab + Other: 3 + 0 + 0

HUMS F125X Introduction to Addictive Processes (s)
3 Credits
Focus on gaining knowledge of the psycho-social aspects of addiction. Historic and behavioral approaches, disease concept and current trends relating to addiction presented. Twelve step and self-help approaches explored. Cross-listed with JUST F125X.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

HUMS F140 Family Dynamics
3 Credits
Focus is on the family as a system and its involvement in the services provided to elders and children as well as services to family members with mental illness, developmental disabilities and substance abuse or dependence.
Lecture + Lab + Other: 3 + 0 + 0

HUMS F202 Standards of Practice II
1 Credit
Offered Spring
This course is designed for students who are either in practicum placement or finalizing their Human Services degree program. Students will demonstrate their competencies as lifelong learners, professional readiness and personal development by encompassing their best written work and self assessment by refining their human services portfolios. Active verbal participation is required.
Prerequisite: HUMS F102 or departmental approval.
Lecture + Lab + Other: 1 + 0 + 0

HUMS F205 Basic Principles of Group Counseling
3 Credits
Offered Spring
Concepts and techniques of working with small groups, including establishing group goals, effective group interaction, termination and evaluation. Development of therapeutic group activities presented.
Lecture + Lab + Other: 3 + 0 + 0

HUMS F210 Crisis and Grief Counseling
3 Credits
Offered Fall
Helping people in crisis from a theoretical and experiential perspective. Understanding how people feel, think and behave during periods of crisis and grieving. Suicide, violence, life transitions and AIDS explored.
Lecture + Lab + Other: 3 + 0 + 0

HUMS F215 Individual Interviewing
2-3 Credits
Introduction to interpersonal communication skills. Focus on gathering client information through the interviewing process. Emphasis on development of one to one interviewing, behavioral observation and documentation.
Lecture + Lab + Other: 2-3 + 0 + 0
HUMS F232  Human Service Practicum I  
3 Credits  
Integration of human service theory with skill-based training through a professional, supervised experience in a human service agency. 
Prerequisites: Human Services major or minor.  
Lecture + Lab + Other: 1 + 8 + 0  
HUMS F233  Human Service Practicum II  
3-6 Credits  
Continuation of HUMS F232. Course may be repeated once for credit to meet program requirements.  
Prerequisites: HUMS F232.  
Lecture + Lab + Other: 1 + 8 + 0  
HUMS F250  Current Issues in Human Services  
1-4 Credits  
Offered As Demand Warrants  
Selected current issues of importance to the human service field. 
Emphasis on issues impacting Alaskan communities. Repeatable for credit by Human Services majors to a maximum of 9 credits.  
Lecture + Lab + Other: 1-4 + 0 + 0  
HUMS F260  History of Alcohol in Alaska (a)  
1 Credit  
Significant historical forces, events and consequences related to alcohol and other drug use in Alaska. Includes current impact and trends.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F261  Substance Abuse Assessment: ASAM PPC II  
1 Credit  
Offered As Demand Warrants  
Treatment begins with assessment of need and intensity of services required. Students will understand criteria of ASAM: PPC II and have the skill to apply it to specific cases.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F263  Fetal Alcohol Spectrum Disorder  
1 Credit  
Identification of alcohol-related neurodevelopmental disorder (fetal alcohol syndrome/effect), understanding of developmental differences, secondary problems and development of intervention strategies leading to best practice.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F264  Culture, Chemical Dependency and Alaska Natives (a)  
1 Credit  
Offered As Demand Warrants  
The importance of culture to recovery and the impact of cultural diversity on counseling and service delivery. Meets requirements for certification as substance abuse counselor in Alaska.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F266  Co-occurring Disorders  
1-2 Credits  
Offered As Demand Warrants  
Theories and skills related to counseling the mentally ill substance abuser. Includes diagnosis, treatment planning and approaches, and special considerations.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1-2 + 0 + 0  
HUMS F267  Introduction to Alcohol Abuse Counseling  
1 Credit  
Offered As Demand Warrants  
Theories and skills related to counseling the substance abuser. Includes diagnosis, treatment planning and approaches, and special considerations.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F268  Introduction to Co-occurring Disorders  
1 Credit  
Offered As Demand Warrants  
Theories and skills related to counseling the mentally ill substance abuser. Includes diagnosis, treatment planning and approaches, and special considerations.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F269  Co-occurring Disorders  
3 Credits  
Continuation of HUMS F266. Course may be repeated once for credit to meet program requirements.  
Prerequisites: HUMS F266.  
Lecture + Lab + Other: 1 + 8 + 0  
HUMS F270  Co-occurring Disorders  
1 Credit  
Offered As Demand Warrants  
Theories and skills related to counseling the substance abuser. Includes diagnosis, treatment planning and approaches, and special considerations.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F271  Substance Abuse Counseling  
1 Credit  
Offered As Demand Warrants  
Theories and skills related to counseling the substance abuser. Includes diagnosis, treatment planning and approaches, and special considerations.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 1 + 0 + 0  
HUMS F290  Case Management  
3 Credits  
Offered Fall  
Case management model emphasizing its useful application to various client groups with an emphasis on Alaska and rural communities. The different roles and aspects of effective case management will be explored and students will practice case management skills both at the individual level and as part of an interdisciplinary team. The role of the community in supporting such efforts as well as providing resources such as natural supports will be emphasized. Use of and knowledge of local, regional and statewide and national resources will be highlighted. Several specific functions of case management will be specifically emphasized, including that of advocate and broker.  
Prerequisite: HUMS F101; HUMS F102; or departmental approval.  
Lecture + Lab + Other: 3 + 0 + 0  
HUMS F301  Ethics in Human Service  
3 Credits  
Offered Spring  
Professional and ethical issues related to the helping professions. Ethical concerns in multicultural and rural human service delivery. Ethics and legal issues related to substance abuse counseling in Alaska.  
Prerequisites: PSY F101X or SOC F101X.  
Lecture + Lab + Other: 3 + 0 + 0  
HUMS F305  Substance Abuse Counseling  
3 Credits  
Offered Spring  
Introduction to the basic principles of substance abuse counseling. Application of counseling modalities to intervention and treatment of individuals, families and groups experiencing alcohol and drug abuse or dependence. Cross-cultural issues addressed.  
Prerequisites: HUMS F125X.  
Lecture + Lab + Other: 3 + 0 + 0  
Humanities (HUM)  
HUM F201X  Unity in the Arts  
3 Credits  
HUM F280  Prevention and Community Development  
3 Credits  
Offered Fall  
Examine the historical evaluation, conceptual framework, practical realities of community development and prevention in rural Alaska. 
Surveys various approaches to addressing community needs, with examples from developing countries and the lower-48 as well as offers a multiplicity of approaches which can be considered in designing and implementing effective and culturally sound community projects. Collecting data to ascertain which needs exist, skills on how to build community consensus as well as exposure to the community readiness model are also covered in this course. Evaluation of efforts in terms of their success and effectiveness will also be introduced.  
Prerequisite: HUMS F101; HUMS F102; or departmental approval.  
Lecture + Lab + Other: 3 + 0 + 0
HUM F492  Senior Seminar (h) 3 Credits
Offered Fall Even-numbered Years
Consideration of the humanities at the University of Alaska and on alternate approaches elsewhere. Student project paper required with oral presentation and defense.
Prerequisites: Open requirements.
Lecture + Lab + Other: 3 + 0 + 0

HUM F492P  Senior Seminar 3 Credits
Offered Fall Even-numbered Years
Consideration of the humanities at the University of Alaska and on alternate approaches elsewhere. Student project paper required with oral presentation and defense.
Prerequisites: Open requirements.
Lecture + Lab + Other: 3 + 0 + 0

Interdisciplinary Studies (INDS)

INDS F498  Research 1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

INDS F698  Research 1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

INDS F699  Thesis 1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

Inupiaq (INU)

INU F106  Introduction to Inupiaq (a) 1 Credit
Entry-level course to learn to speak and understand basic words and phrases of the Inupiaq Eskimo language of the Northwest Arctic. Instruction is thematic and the focus is on communications for everyday situations.
Lecture + Lab + Other: 1 + 0 + 0

INU F111X  Elementary Inupiaq (h, a) 5 Credits
Offered Fall
Introduction to Inupiaq, the language of Unalakleet, Seward Peninsula, Kotzebue Sound and the North Slope. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others it provides a framework for learning to speak, read and write the language. Consideration given to dialect differences.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

INU F112X  Elementary Inupiaq (h, a) 5 Credits
Offered Spring
Introduction to Inupiaq, the language of Unalakleet, Seward Peninsula, Kotzebue Sound and North Slope. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others it provides a framework for learning to speak, read and write the language. Consideration given to dialect differences.
Prerequisites: INU F111X.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

INU F115  Conversational Inupiaq (a) 1-3 Credits
Offered As Demand Warrants
Introductory course for students who wish to acquire the ability to speak Inupiaq, the language of Norton Sound, the Seward Peninsula, Kotzebue Sound, the North Slope, and the arctic portions of Canada and Greenland. Students first learn to understand simple spoken language, then to speak simple Inupiaq, developing a beginning level of communicative competence in the language.
Lecture + Lab + Other: 1-3 + 0 + 0

INU F116  Conversational Inupiaq (a) 1-3 Credits
Offered As Demand Warrants
Introductory course for students who wish to acquire the ability to speak Inupiaq, the language of Norton Sound, the Seward Peninsula, Kotzebue Sound, the North Slope, and the Arctic portions of Canada and Greenland. Students first learn to understand simple spoken language, then to speak simple Inupiaq, developing a beginning level of communicative competence in the language.
Prerequisites: INU F115.
Lecture + Lab + Other: 1-3 + 0 + 0

INU F118  Inupiaq Orthography (a) 3 Credits
Offered As Demand Warrants
Entry-level course designed for students who are fluent in Inupiaq. Reading silently and aloud, and writing. Emphasis on specific skills and practical application of skills through writing assignments.
Prerequisites: Demonstrated conversational Inupiaq skills.
Lecture + Lab + Other: 3 + 0 + 0

INU F211  Intermediate Inupiaq (h, a) 3 Credits
Offered Fall
Continuation of INU F111X and INU F112X, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary.
Prerequisites: INU F112X.
Lecture + Lab + Other: 3 + 0 + 0

INU F212  Intermediate Inupiaq (h, a) 3 Credits
Offered Spring
Continuation of INU F211, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary.
Prerequisites: INU F211.
Lecture + Lab + Other: 3 + 0 + 0

INU F218  Inupiaq Composition (a) 3 Credits
Offered As Demand Warrants
An examination of the development of written Inupiaq uses to entertain, inform, persuade, transcribe oral narratives and take notes on such occasions as city council meetings. Open to new genres, rather than simply translating the standard categories of English composition. Students receive extensive practice in the Inupiaq orthography and actively participate in evaluation of each other's writing.
Prerequisites: INU F118.
Lecture + Lab + Other: 3 + 0 + 0
INU F417  Advanced Inupiaq   (h, a)  
3 Credits  
Offered Spring  
Advanced study in Inupiaq Eskimo. Continuation of INU F212.  
**Prerequisites:** INU F111X; INU F112X; INU F211; INU F212.  
Lecture + Lab + Other: 3 + 0 + 0

**Italian (ITAL)**  
ITAL F100A  Elementary Italian I  
3 Credits  
Offered as Demand Warrants  
Introductory study of the Italian language, culture and geography. Focuses on language skills to include grammar, vocabulary, pronunciation, and contemporary use of the language. Students will be introduced to the written and spoken language while learning about Italian culture. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.  
Lecture + Lab + Other: 3 + 0 + 0

ITAL F100B  Elementary Italian II  
3 Credits  
Offered as Demand Warrants  
For students already in the process of learning Italian. Will be working individually, in pairs and in small groups toward reading, writing, listening and speaking. Focuses on language skills to include vocabulary terms, grammatical structures and conversational abilities. Will also learn about different cultures in the Italian-speaking world. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.  
**Prerequisites:** ITAL F100A.  
Lecture + Lab + Other: 3 + 0 + 0

**Japanese (JPN)**  
JPN F100A  Japanese Culture and Conversation IIA  
5 Credits  
Offered As Demand Warrants  
This is the first semester of second-year exploration of Japanese culture and conversation and requires completion of JPN F100B with a grade of C- or higher. This course does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.  
**Prerequisites:** JPN F100B.  
Lecture + Lab + Other: 3 + 0 + 0

JPN F100F  Japanese Culture and Conversation IIB  
3 Credits  
Offered As Demand Warrants  
This is the first semester of second-year exploration of Japanese culture and conversation and requires completion of JPN F100E with a grade of C- or higher. This course does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.  
**Prerequisites:** JPN F100E.  
Lecture + Lab + Other: 3 + 0 + 0

JPN F101X  Elementary Japanese I  
5 Credits  
Offered Fall  
Introduction to spoken and written Japanese. The student will acquire a vocabulary of approximately 1,000 words and will learn to read and write the two syllabaries, hiragana and katakana, as well as 150 kanji. Cultural dimension is explored implicitly through language and explicitly through audiovisual materials. Courses are taught in Japanese.  
**Attributes:** UAF GER Humanities Req  
Lecture + Lab + Other: 5 + 0 + 0

JPN F102X  Elementary Japanese II  
5 Credits  
Offered Spring  
Introduction to spoken and written Japanese. The student will acquire a vocabulary of approximately 1,000 words and will learn to read and write the two syllabaries, hiragana and katakana, as well as 150 kanji. Cultural dimension is explored implicitly through language and explicitly through audiovisual materials. Course is taught in Japanese.  
**Attributes:** UAF GER Humanities Req  
Lecture + Lab + Other: 5 + 0 + 0

JPN F201  Intermediate Japanese I  
4 Credits  
Offered Fall  
The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension enhanced by using videotape materials. Course is taught in Japanese.  
**Prerequisites:** JPN F102X.  
Lecture + Lab + Other: 4 + 0 + 0

JPN F202  Intermediate Japanese II  
4 Credits  
Offered Spring  
The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension enhanced by using videotape materials. Course is taught in Japanese.  
**Prerequisites:** JPN F201.  
Lecture + Lab + Other: 4 + 0 + 0
### JPN F210  **Beginning Kanji**  (h)

2 Credits  
Offered Fall  
Students will learn to read and write 500 basic kanji (Chinese characters) through studying their history, composition and artistic value.  
Prerequisites: Hiragana and Katakana recognition.  
Lecture + Lab + Other: 2 + 0 + 0

### JPN F301  **Advanced Japanese**  (h)

3 Credits  
Offered Fall  
Development of advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the standard Tokyo dialect; and a study of television drama series. May be repeated with different topics.  
Prerequisites: JPN F202.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F302  **Advanced Japanese**  (O, h)

3 Credits  
Offered Spring  
Development of advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the standard Tokyo dialect; and a study of television drama series. May be repeated with different topics.  
Prerequisites: COJO F131X or COJO F141X; JPN F301.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F310  **Intermediate Kanji**  (h)

2 Credits  
Offered Spring  
Continuation of JPN F210 Beginning Kanji. Students will learn to read and write additional 500 kanji (Chinese characters) through studying their history, composition and artistic value.  
Prerequisites: JPN F210.  
Lecture + Lab + Other: 2 + 0 + 0

### JPN F311  **Advanced Kanji**  (h)

2 Credits  
Offered As Demand Warrants  
Continuation of JPN F310 Intermediate Kanji. Students will learn to read and write additional 1000 kanji (Chinese characters) through studying their history, composition and artistic value.  
Prerequisites: JPN F310.  
Lecture + Lab + Other: 2 + 0 + 0

### JPN F330  **Classical Japanese Literature**  (h)

3 Credits  
Offered As Demand Warrants  
A survey of the major works and genres of Japanese prose and poetry from the 8th to 18th centuries including Heian tales (monogatari), medieval folk tales and military chronicles, and the playful literature of the Edo period. Major emphases include the Tale of Genji, the Tale of the Heike and mastering the conventions that continue to be both adapted and subverted in modern Japanese literature. Course is taught in English.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F331  **Women's Voices in Japanese Literature**  (W, h)

3 Credits  
Selected novels, short stories, poems and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society, the role of women writers as social critics, and cross-cultural differences and similarities in women's issues.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F200X or FL F200X.  
Recommended: HIST F121, HIST F122X, HIST F331.  
Cross-listed with WGS F331.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F332  **Japanese Cultural Traditions and Arts**  (h)

3 Credits  
Offered Fall Even-numbered Years  
A study of Japanese cultural traditions and arts as influenced by the religious and philosophical systems of Shinto, Buddhism, Confucianism and Taoism. Lectures will cover a wide range of Japanese traditional arts such as tea ceremony, calligraphy, martial arts, Noh, Bunraku, and Kabuki. Course is taught in English.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F333  **20th-Century Japanese Prose Fiction**

3 Credits  
Offered Spring Odd-numbered Years  
A study of selected novels, short stories and film scripts in translation representative of styles and themes which characterize twentieth century Japanese literature. Analysis of each work in terms of characterization, themes, structure, style and as an expression of social problems or intellectual issues in modern Japanese society. Course is taught in English. Note: Course may be repeated for credit when topic varies.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F431  **Studies in Japanese Culture**  (h)

3 Credits  
Offered Fall  
Further study of advanced written and spoken Japanese through essays, newspaper and journal articles, and television documentaries dealing with topics in Japanese culture. Note: Course may be repeated for credit when topic varies.  
Prerequisites: JPN F302.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F432  **Studies in Japanese Language**  (h)

3 Credits  
Offered Spring  
In-depth study of Japanese language or literature. Course may be repeated for credit when topics vary.  
Prerequisites: JPN F302.  
Lecture + Lab + Other: 3 + 0 + 0

### JPN F475  **Seminar on Contemporary Japan**  (h)

3 Credits  
Offered As Demand Warrants  
Ties together various threads of the Japanese studies program and gives students an opportunity to apply their knowledge to contemporary issues in Japan. Provides a forum for student presentations of research papers begun in Japan.  
Prerequisites: Upper-division semester in Japan at pre-approved program.  
Lecture + Lab + Other: 3 + 0 + 0
Justice (JUST)

JUST F110X  Introduction to Justice  (s)
3 Credits
Survey of the structure and process of the agencies of criminal justice. Includes introduction to criminology, criminal law, police, courts and corrections.

Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

JUST F125X  Introduction to Addictive Processes  (s)
3 Credits
Focus on gaining knowledge of the psycho-social aspects of addiction. Historic and behavioral approaches, disease concept and current trends relating to addiction presented. Twelve step and self-help approaches explored.

Cross-listed with HUMS F125X.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

JUST F222  Research Methods  (s)
3 Credits
Offered Fall
Application of social science research methods to solving scientific and nonscientific questions arising in justice or political science. Basic methods include statistical analysis, survey research, and Internet applications.

Prerequisites: JUST F110X.
Lecture + Lab + Other: 3 + 0 + 0

JUST F251X  Criminology  (s)
3 Credits
Offered Spring
The study of the major areas of deviant behavior and its relationship to society, law and law enforcement, including the theories of crime causation.

Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

JUST F300X  Ethics and Justice  (h)
3 Credits
An examination of ethical and moral concepts, and their relationship to criminal justice issues. Applies ethics theories to the criminal justice institutions of police, courts and corrections. Examines ethical and moral dilemmas which confront crime control policy makers.

Prerequisites: Junior standing.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

JUST F310  Principles of Corrections  (s)
3 Credits
Offered Fall
An introduction to adult institutions, community- based programs, and theories of incarceration. Correctional programs are examined.

Prerequisites: JUST F110X, junior standing.
Lecture + Lab + Other: 3 + 0 + 0

JUST F315  Correctional Counseling and Rehabilitation
3 Credits
Offered Spring
A study of various treatment and rehabilitative/restorative methods utilized in correctional settings. Topics include the roles of correctional personnel, the assessment and treatment of juveniles and adults, casework in correctional settings, crisis intervention, and the assessment and treatment of special populations in the correctional setting.

Prerequisites: JUST F310; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

JUST F335  Gender and Crime  (W)
3 Credits
Offered Spring
An exploration of gender and crime including the extent of female crime, victimization, masculinity and violence, and women professionals in the justice system.

Prerequisites: JUST F110X, WRTG F211X; WRTG F212X, WRTG F213X or WRTG F214X; junior standing.
Cross-listed with WGS F335.
Lecture + Lab + Other: 3 + 0 + 0

JUST F340  Rural Justice in Alaska  (s, a)
3 Credits
Offered Fall and Spring
Application of the western justice system to remote northern Native villages including issues arising from cultural conflicts, difficulties associated with a centralized justice system serving distant roadless communities, the federal/Indian relationship, and a description of crime occurring in the villages.

Prerequisites: JUST F110X; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

JUST F345  Police Problems  (W)
3 Credits
Offered Fall
Analysis of the nature of coercive power and the special problems faced by people who assume the responsibility of coercing others; how coercive power affects personality and how personality affects the way different types of people respond to the challenge and responsibilities of using coercive means; conditions that discourage excessive use of coercive means and encourage police officers to develop in morally and politically mature ways.

Prerequisites: WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; JUST F110X; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

JUST F352  Criminal Law
3 Credits
A study of elements, purposes and functions of the substantive criminal law with emphasis upon historical and philosophical concepts.

Prerequisites: JUST F110X; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

JUST F354  Procedural Law
3 Credits
Offered Fall
The legal limitations of the police and the right of the people to be secure from the government under the protections of the Constitution and the Rules of Evidence.

Prerequisites: WRTG F111X; JUST F110X; junior standing.
Lecture + Lab + Other: 3 + 0 + 0
JUST F358  **Juvenile Delinquency**  (s)  
3 Credits  
Offered Fall  
Theories of delinquency, the extent of delinquency, the historical development of juvenile justice, the juvenile system, and how it impacts on youth in relation to police, courts, institutions and community programs. Includes youth violence, gangs, gender, race and class.  
**Prerequisites:** JUST F110X; JUST F251X.  
Lecture + Lab + Other: 3 + 0 + 0  

JUST F453  **Comparative Criminology**  (O, s)  
3 Credits  
Offered Fall.  
The Justice program focuses on the American justice system with an emphasis in restorative processes, alternative dispute resolution, and Alaskan justice. This course examines the development of philosophy and law; and the historical and modern practice of justice throughout the world.  
**Prerequisites:** COJO F131X or COJO F141X; JUST F110X; JUST F251X.  
Lecture + Lab + Other: 3 + 0 + 0  

JUST F454  **Advanced Problems in Procedural Law**  (W)  
3 Credits  
Offered Spring  
Advanced study of the elements of criminal procedural law. Emphasis on the legal limitations of the police and the right of people to be secure from the government under protections of the U.S. Constitution and "rules of evidence."  
**Prerequisites:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; JUST F110X, JUST F354; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0  

JUST F460  **American Crime Control**  (O, s)  
3 Credits  
Offered Fall  
Major concepts of the structure and process of criminal justice revisited with emphasis on current issues.  
**Prerequisites:** COJO F131X or COJO F141X; JUST F110X; JUST F222; JUST F251X; senior standing; justice major.  
Lecture + Lab + Other: 3 + 0 + 0  

JUST F475  **Internship**  (W)  
3-9 Credits  
Supervised work experience in criminal justice agencies. Note: Department approval required for 9 credits.  
**Prerequisites:** Permission of director of intern program.  
Lecture + Lab + Other: 3-9 + 0 + 0  

JUST F490  **Capstone: Seminar in Critical Issues in Criminal Justice**  (O, s)  
3 Credits  
Offered Spring  
This seminar is one of three ways to satisfy the major capstone experience. The seminar will last for one week and the student will be required to attend sessions 8 hours a day. Topics of current interest. Candidates in standing for BA degree in Justice will make presentations. Attendance is required on the UAF campus.  
**Prerequisites:** Senior standing.  
Lecture + Lab + Other: 3 + 0 + 0  

JUST F492  **Seminar**  (O, s)  
1-6 Credits  
Various topics of current interest and importance to the justice major will be presented. Topics will be announced prior to each offering.  
**Prerequisites:** JUST F110X; junior standing; permission of instructor.  
Lecture + Lab + Other: 1-6 + 0 + 0
**Latina (LAT)**

**LAT F101X  Beginning Latin I**  (h)
3 Credits
Introduction to ancient Latin language and Roman culture, development of competence through reading original authors with emphasis on vocabulary, recognition and correct use of grammar.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

**LAT F102X  Beginning Latin II**  (h)
3 Credits
Continuation of the introduction to ancient Latin language and Roman culture, development of competence through reading original authors with emphasis on vocabulary, recognition and correct use of grammar.
Prerequisites: LAT F101X.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

**LAT F201  Intermediate Latin I**  (h)
3 Credits
Continuation of LAT F102X. Increasing development of competence through reading original authors with growing emphasis on grammar usage and vocabulary.
Prerequisites: First year college Latin.
Lecture + Lab + Other: 3 + 0 + 0

**LAT F202  Intermediate Latin II**  (h)
3 Credits
Continuation of LAT F201. Increasing development of competence through reading original authors with growing emphasis on grammar usage and vocabulary.
Prerequisites: LAT F201.
Lecture + Lab + Other: 3 + 0 + 0

**Law Enforcement (LE)**

**LE F110  Cultural and Behavioral Strategies for Law Enforcement Officers**
1 Credit
Offered As Demand Warrants
Introduction to a number of behavioral strategies to facilitate interaction among various cultures to be found in Alaska. It also gives the student a strong concept of police ethics as it relates to everyday performance of police duties. The student receives an introduction to problems and strategies for law enforcement officers in their relationships to their marriages and families. Special Conditions: Students must meet basic Police Standards qualifications for police officers.
Lecture + Lab + Other: 1 + 0 + 0

**LE F115  Enforcement Skills for Law Enforcement Officers**
3 Credits
Offered As Demand Warrants
Introduction to the basic skills necessary to use firearms (both pistol and shotgun), operate a motor vehicle under emergency conditions and use Oleo Capsicum (pepper) spray effectively. A continuum on the use of force, judgment in the use of deadly force, physical defense tactics and physical arrest. Special Conditions: Students must meet basic Police Standards qualifications for police officers.
Lecture + Lab + Other: 2 + 8 + 0

**LE F120  Law Enforcement Operations**
4 Credits
Offered As Demand Warrants
Preparation to conduct specific investigations into auto theft, domestic violence events, DUI detection, juvenile procedures, care of the emotionally disturbed, report writing and jail procedures. Special Conditions: Students must meet basic Police Standards qualifications for police officers.
Lecture + Lab + Other: 3 + 3 + 0
LEAD F125  Basic Police Procedures
4 Credits
Offered As Demand Warrants
Introduction to conducting investigations, using approved methods, at any major crime scene. Specific skills are presented for use in the investigation of sexual assaults, homicides, arson, gang related activity and death investigations. Skills are taught in: interview and interrogation, crime scene physical collection, hostage situations, scene investigation and mapping. Introduction to the danger of blood-bourne pathogens and protective measures. Special Conditions: Students must meet basic Police Standards qualifications for police officers.
Lecture + Lab + Other: 3 + 3 + 0

LEAD F205  Criminal Law for Police
4 Credits
Offered As Demand Warrants
Introduction to the more complex issues of criminal law. The Alaska Statutes, constitutional law and court decisions as well as traffic law, search and seizure, rights of defendants and warrant procedures. Special Conditions: Students must meet basic Police Standards qualifications for police officers.
Lecture + Lab + Other: 4 + 0 + 0

Leadership (LEAD)

LEAD F280  Sport Leadership
3 Credits
Offered As Demand Warrants
Provides leadership theory and develop leadership skills for application internal and external to their sport. Focus on the identification and development of leadership skills/abilities and application within the classroom, a sport and for an on-campus project.
Cross-listed with BA F280; SPRT F280.
Lecture + Lab + Other: 3 + 0 + 0

LEAD F305  Leadership Alaska: Making a Difference  (s)
4 Credits
Offered Spring
A leadership seminar and practicum which will involve building community, developing networks, learning leadership theories, understanding civic responsibility, and creating an action project through which the student becomes a leader.
Prerequisites: Either be an Alaska Scholar; an Honors student; a member of the National Society of Collegiate Scholars; have a 3.25 GPA.
Lecture + Lab + Other: 4 + 0 + 0

LEAD F456  Leadership in Dangerous Contexts  (W)
3 Credits
Offered As Demand Warrants
This course focuses on the challenges faced by those who serve as leaders during crisis and emergency circumstances. During emergency circumstances, leading others, being able to influence and motivate them during crisis is critical. Topics including leadership and followership, crisis decision making, fear and emotion and the unique circumstances of an emergency manager/homeland security professional are examined.
Prerequisites: HSEM F301; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Cross-listed with HSEM F456.
Lecture + Lab + Other: 3 + 0 + 0

LEAD F470  Leadership Theory and Development
3 Credits
Offered Alternate Spring
A guide for interpreting leadership theory and research as well as practical advice on how to be a better leader. The course acts as a review of all functional leadership theories, how the theories relate to one another, and how students can apply the leadership theories to their own personal development.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; WRTG F214X; COJO F131X or COJO F141X; BA F390.
Lecture + Lab + Other: 3 + 0 + 0

LEAD F472  Leading Change
3 Credits
Offered Alternate Fall
The course is designed to explore some of the technologies for intervening in organizations to develop their capability and to achieve change. We explore the way in which change agents deal with their conflicting demands. The thrust of the text is how to become a leading change agent within an organization and extend your understanding and application of key concepts and theories.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; BA F390.
Lecture + Lab + Other: 3 + 0 + 0

Liberal Arts and Science (LAS)

LAS F410  Scientific Research  (O/2, W)
3 Credits
Offered As Demand Warrants
Formulation and testing of hypotheses using field observation and experimentation. Includes collection of data, analysis using spreadsheets and statistical software, and oral/written presentation. Focus on individual and group participation in ongoing field or laboratory projects in the natural sciences. Degree program.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; WRTG F214X; junior or senior standing as a major in the B.A.S.
Lecture + Lab + Other: 2 + 3 + 0

LAS F601  Responsible Conduct of Research
2 Credits
Maintaining the public trust and respect of fellow scientists requires a clear understanding of the basic principles under which research is conducted and reported. Introduces students to the basic principles and expectations that form the foundation of research integrity. Students will learn to recognize and address ethical dilemmas in research scenarios, thus preparing them for situations that will invariably arise during their career. This course fulfills National Science Foundation and National Institutes of Health requirements. Interested post-doctoral fellows and other with terminal degrees are also invited to enroll with permission of instructor.
Prerequisites: Senior undergraduate or graduate student standing.
Lecture + Lab + Other: 2 + 0 + 0

LAS F692  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

LAS F692P  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

LAS F698  Non-thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0
Library Science (LS)

LAS F699  Thesis/Dissertation
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

Library Science (LS)

LS F101X  Library Information and Research
1 Credit
Introduction to effective library research methods and principles of information organization and retrieval. Emphasis on applied experience with finding and evaluating information, especially through use of library catalogs, journal indexes and Internet resources. Some sections may emphasize selected academic areas. Also available via eLearning and Distance Education.
Attributes: UAF Core Library Skills Req, UAF GER Library Skills Req
Lecture + Lab + Other: 1 + 0 + 0

Linguistics (LING)

LING F100  Language, Education, Linguistics  (h)
3 Credits
Offered Spring
Introduction to the field of linguistics as it pertains to the field of education. Includes discussions of language structure, acquisition and bilingualism, and variation and public policy. The course does not satisfy requirements for the B.A. in Linguistics.
Cross-listed with ED F100.
Lecture + Lab + Other: 3 + 0 + 0

LING F101X  Nature of Language  (h)
3 Credits
Offered Fall
The study of language: systematic analysis of human language and description of its grammatical structure, distribution and diversity.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

LING F200  The Field of Teaching English to Speakers of Other Languages
1 Credit
Offered Fall
The course provides an introduction to the profession of English second language teaching with a focus on the types knowledge, training and experience valued in the field as well as available international and US employment options. The course is offered on a pass/fail basis.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 1 + 0 + 0

LING F216X  Languages of the World  (h)
3 Credits
Offered Fall
A comprehensive survey of the world's languages—past and present. Topics include genetic relationships among languages, linguistic change, language universals, language classification and language families, as well as the interaction of culture and language.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

LING F223  Sociolinguistics: Language and Social Inequality
3 Credits
Offered As Demand Warrants
This course is an introduction to the concepts and methods of linguistic anthropology and sociolinguistics. It draws from these disciplines in order to investigate the role of language variation in social inequality. It covers concepts including language varieties, speech styles, language ideologies, the creation of standard languages and portrayals of ethnolinguistic groups in the media.
Prerequisites: ANTH F100X or LING F101X.
Cross-listed with ANTH F223.
Lecture + Lab + Other: 3 + 0 + 0

LING F260  Language in Culture and Communication  (s)
3 Credits
Offered Spring
An introduction to the study of the language and culture nexus. Questions addressed include: How does the language you speak affect how you think and view the world? How do ways of speaking shape culture? What do we know about how human language evolved? How does language encode cultural meaning? Topics may include linguistic relativity, ethnography of communication, interactional sociolinguistics, writing systems and ritual language.
Prerequisites: ANTH F100X; or ANTH F101X; or ANTH F215; or SOC F101X; or LING F101X.
Cross-listed with ANTH F260.
Lecture + Lab + Other: 3 + 0 + 0

LING F302  Second Language Acquisition
3 Credits
Offered Spring
Central issues in second language acquisition research. Includes a critical review of SLA theories and research.
Prerequisites: LING F101X.
Lecture + Lab + Other: 3 + 0 + 0

LING F303  Language Acquisition  (O, W)
3 Credits
Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary theories, and implications for pedagogy and public policy.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Recommended: LING F101X.
Cross-listed with ED F303.
Lecture + Lab + Other: 3 + 0 + 0

LING F308  Language and Gender  (O, W, s)
3 Credits
Offered As Demand Warrants
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.
Prerequisites: WRTG F111X; WRTG F211X; WRTG F212X, WRTG F213X or WRTG F214X; LING F101X; LING F216X; ANTH F100X; ANTH F101X or WGS F201X.
Cross-listed with ANTH F308; WGS F308.
Lecture + Lab + Other: 3 + 0 + 0
LING F315  English Language for Second Language Teaching  
3 Credits  
Study of the history, spread and varieties of the English language and the basic elements of its grammar, sound system and its use in discourse. This course is designed for students interested in teaching English as a second language and focuses on teaching implications of course content.  
**Prerequisites:** WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X.  
Lecture + Lab + Other: 3 + 0 + 0

LING F318  Introduction to Phonetics and Phonology  
(h)  
3 Credits  
Offered Spring  
Scientific study of human speech sounds, mechanism of their production, and sound systems of languages.  
**Prerequisites:** Upper-division standing.  
Lecture + Lab + Other: 3 + 0 + 0

LING F320  Introduction to Morphology  
(h, a)  
3 Credits  
Offered Fall  
Study of principles and processes of word construction in language.  
**Prerequisites:** LING F318.  
Lecture + Lab + Other: 3 + 0 + 0

LING F389  Klingon, Elvish and Dothraki: The Art and Science of Language Creation  
(s, a)  
3 Credits  
Offered As Demand Warrants  
Exposure to linguistics and linguistic anthropology based on hands-on experience with collaboratively creating a "conlang," or invented humanoid language. Instruction will draw from examples of the range of human linguistic and cultural variation in order to address how to design the sound system, grammar, writing system and "mythology" or cultural context for the language. At the end of the semester, the class as a whole will have created a basic ConWorld, lexicon, grammar, writing system and translated texts into the language.  
**Prerequisites:** WRTG F111X; one semester of foreign language; ENGL F318, LING F101X, LING F223 or ANTH F260.  
Cross-listed with ANTH F389.  
Lecture + Lab + Other: 3 + 0 + 0

LING F410  Theory and Methods of Second Language Teaching  
(O)  
3 Credits  
Offered Fall Odd-numbered Years  
Theory and methods of teaching a second language, including various pedagogical approaches, overview of second language acquisition theory, discussion of materials and testing.  
**Prerequisites:** COJO F131X or COJO F141X; three years of a foreign or Alaska Native language or LING F302 and LING F315.  
Lecture + Lab + Other: 3 + 0 + 0

LING F420  Semantics  
(h)  
3 Credits  
Offered As Demand Warrants  
A systematic exploration of the nature of meaning in human language. Focus is on historical and contemporary approaches to understanding problems of reference, categorization and lexical relationships in meaningful contexts.  
**Prerequisites:** LING F101X.  
Stacked with LING F620.  
Lecture + Lab + Other: 3 + 0 + 0

LING F430  Historical Linguistics  
(h)  
3 Credits  
Offered Fall Even-numbered Years  
Introduction to comparative and historical linguistics: methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages.  
**Prerequisites:** LING F318.  
Stacked with LING F630.  
Lecture + Lab + Other: 3 + 0 + 0

LING F431  Field Methods in Descriptive Linguistics I  
3 Credits  
Offered Spring Odd-numbered Years  
Introduction to general issues in language field work and to issues specific to working with little studied and/or endangered languages in particular. Focus on introduction to writing systems, making recordings, computers and transcriptions, planning consultant sessions, working with consultants, interviewing and ethics in the field. Projects include making transcriptions of familiar language, and later, working on unfamiliar language with a language consultant, selecting and carrying out a well-defined project, resulting in a term paper.  
**Prerequisites:** LING F318; LING F320.  
Cross-listed with ANTH F432.  
Stacked with ANTH F632; LING F631.  
Lecture + Lab + Other: 3 + 0 + 0

LING F434  Field Methods in Descriptive Linguistics II  
3 Credits  
Offered As Demand Warrants  
Second semester of Field Methods sequence. Plan linguistic field project, including field trip, caring for equipment, data handling, community contacts, intellectual property, and repatriation. Course work includes lectures and group elicitation with a speaker of a non-Indo-European language. Projects may involve either the traditional field work involving finding and working with a consultant, or work involving research of archival materials on languages no longer spoken.  
**Prerequisites:** ANTH F432 or LING F431.  
Cross-listed with ANTH F434.  
Stacked with ANTH F634; LING F634.  
Lecture + Lab + Other: 3 + 0 + 0

LING F435  Political Media and Discourses of the American Right  
(O, s)  
3 Credits  
Offered Fall Even-numbered Years or As Demand Warrants  
This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts. Evaluation of the veracity, ethical or historical merits of conservative political stances is not part of the scope of the class.  
**Prerequisites:** COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Cross-listed with ANTH F435; COJO F435.  
Stacked with ANTH F635; COJO F640; LING F635.  
Lecture + Lab + Other: 3 + 0 + 0
LING F440  Aspects of Bilingualism  (W, h)
3 Credits
Offered As Demand Warrants
Cognitive, linguistic, sociopolitical and educational aspects of bilingualism at both the individual and societal levels, including factors contributing to language maintenance and language shift.
Prerequisites: LING F101X; LING F318; LING F320.
Lecture + Lab + Other: 3 + 0 + 0

LING F441  Topics in Linguistics
3 Credits
An elective course in linguistics for majors. Content will vary from year to year and may be drawn from many areas of linguistics to include current research and methodologies. Course may be repeated two times for credit when content varies.
Prerequisites: LING F101X; LING F318; LING F320.
Lecture + Lab + Other: 3 + 0 + 0

LING F450  Language Policy and Planning  (O, s)
3 Credits
Offered Fall Odd-numbered Years
Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status and factors affecting future maintenance.
Prerequisites: COJO F131X or COJO F141X.
Stacked with LING F650.
Lecture + Lab + Other: 3 + 0 + 0

LING F451  English Second Language Teaching Practicum
3 Credits
Offered Spring
Methodology workshop for students interested in teaching English as a second language. Includes language acquisition pedagogy and employment of these techniques in a lower division language classroom under the supervision of a classroom teacher. Enrollment subject to available classroom placement.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F410.
Lecture + Lab + Other: 2 + 0 + 3

LING F482  Seminar in Linguistics
3 Credits
Offered Spring
Current issues in various subfields of linguistics including semantics and pragmatics, discourse analysis, bilingualism, lexicography, language philosophy and issues within a particular language or language group, e.g. Eskimo phonology, Athabascan morphology. May be repeated once.
Prerequisites: LING F101X; LING F318; LING F320.
Lecture + Lab + Other: 3 + 0 + 0

LING F485  Discourse in Society: Analyzing Language in Social Context  (s)
3 Credits
Offered Fall Even-numbered Years
Hands-on experience in collection, transcription and analysis of naturally-occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.
Prerequisites: LING F101X, ANTH F260 or ANTH F320.
Cross-listed with ANTH F485.
Stacked with ANTH F685, LING F685.
Lecture + Lab + Other: 3 + 0 + 0

LING F500  Research Methods for Applied Linguistics
3 Credits
Offered Spring
Review of quantitative and qualitative research paradigms, data gathering techniques and analytical tools (questionnaires, surveys, observations, testing) used in the study of applied linguistics. Topics will include ethical issues in human subjects research, how to conduct a literature review, how to conduct classroom-based research.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

LING F601  Principles of Linguistic Analysis
3 Credits
Offered Fall
Provides experience in working with various languages to determine systematic principles of transcribing and organizing sounds; isolating morphemes; categorizing words into semantic categories; and understanding narrative and other rhetorical structures. For students whose specialty is other than linguistics who could benefit from a graduate-level introduction to linguistic methods.
Prerequisites: LING F101X or LING F601; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

LING F602  Second Language Acquisition
3 Credits
Offered Fall
Central issues in second language acquisition research. Includes a critical review of SLA theories and research.
Prerequisites: LING F101X or LING F601; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

LING F603  Phonetics and Phonology
3 Credits
Offered Spring
Scientific approach to the study of human speech sounds and the mechanism of their production (phonetics), as well as the exploration of the fundamental concepts of the sound systems of languages (phonology) and theories which allow for the analysis of real language data.
Prerequisites: LING F101X or LING F601; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

LING F604  Morphology and Syntax
3 Credits
Offered Fall
The study of how meaning is encoded in words in languages of the world. Morphological and morphophonemic processes, lexical categories, derivation and inflection, productivity, tense, aspect, mode, case, concord, valence changes, morphological typologies. Similarities and differences among languages in the grammatical devices used to signal relations between nouns and verbs, negation, comparison, attribution.
Prerequisites: LING F101X or LING F601; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

LING F610  Theory and Methods of Second Language Teaching
3 Credits
Offered Spring
Theory and practice of teaching a second language, including methodological approaches, second language acquisition theory, materials, and testing.
Prerequisites: LING F602.
Lecture + Lab + Other: 3 + 0 + 0
LING F411 Second Language Curriculum and Materials Development
3 Credits
Offered Spring Even-numbered Years
Exploration/discussion of theoretical perspectives in Second Language curriculum and materials development. Emphasis on the interconnectivity of materials, syllabus, curriculum, and learning. As a result of this course, students will be able to choose, adapt and construct a variety of language teaching materials and understand the ramifications of syllabus and curriculum design.
Prerequisites: LING F602; LING F610.
Recommended: LING F601.
Lecture + Lab + Other: 3 + 0 + 0

LING F612 Assessment for the Second Language Classroom
3 Credits
Offered As Demand Warrants
Exploration/discussion of theoretical perspectives in second language assessment, practical considerations in creating language tests, and statistical methods used for analyzing test data. As a result of this course, students will be able to choose, adapt and construct a variety of language assessments for classroom and institutional purposes as well as evaluate the validity of existing assessments.
Prerequisites: LING F602; LING F610.
Recommended: LING F601.
Lecture + Lab + Other: 3 + 0 + 0

LING F620 Semantics
3 Credits
Offered As Demand Warrants
A systematic exploration of the nature of meaning in human language. Focus is on historical and contemporary approaches to understanding problems of reference, categorization and lexical relationships in meaningful contexts.
Prerequisites: Graduate standing.
Stacked with LING F420.
Lecture + Lab + Other: 3 + 0 + 0

LING F621 Cultural Aspects of Language Acquisition
3 Credits
Offered As Demand Warrants
An expanded view of the ways in which individuals become socialized into particular patterns of first and second language and literacy. The ongoing acquisition of both oral and written language(s) from early childhood through adult life. Topics will include the cultural dimensions of language development, the relationship between communication and culture, bilingualism and the role of language in the transmission of sociocultural knowledge.
Cross-listed with ED F621.
Lecture + Lab + Other: 3 + 0 + 0

LING F627 Introduction to Linguistic Description and Documentation (a)
3 Credits
Offered As Demand Warrants
General introduction to lexicography, field phonetics, grammatical documentation, investigation of narrative, other levels of linguistic documentation, the distinction between description and documentation, and differences in structure and method between pedagogical and academic materials resulting from field work.
Prerequisites: LING F601; demonstrated background in phonology and morphology.
Lecture + Lab + Other: 3 + 0 + 0

LING F630 Historical Linguistics (a)
3 Credits
Offered Fall Even-numbered Years
Introduction to comparative and historical linguistics: methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages.
Prerequisites: LING F318.
Stacked with LING F430.
Lecture + Lab + Other: 3 + 0 + 0

LING F631 Field Methods in Descriptive Linguistics I
3 Credits
Offered Spring Odd-numbered Years
Introduction to general issues in language field work and to issues specific to working with little studied and/or endangered languages in particular. Focus on introduction to writing systems, making recordings, computers and transcriptions, planning consultant sessions, working with consultants, interviewing and ethics in the field. Projects include making transcriptions of familiar language, and later, working on unfamiliar language with a language consultant, selecting and carrying out a well-defined project, resulting in a term paper.
Prerequisites: LING F627.
Cross-listed with ANTH F632.
Stacked with ANTH F432; LING F431.
Lecture + Lab + Other: 3 + 0 + 0

LING F634 Field Methods in Descriptive Linguistics II (a)
3 Credits
Offered As Demand Warrants
Second semester of Field Methods sequence. Plan linguistic field project, including field trip, caring for equipment, data handling, community contacts, intellectual property and repatriation. Course work includes lectures and group elicitation with a speaker of a non-Indo-European language. Projects may involve either traditional field work involving finding and working with a consultant, or work involving research of archival materials on languages no longer spoken.
Prerequisites: ANTH F632 or LING F631.
Cross-listed with ANTH F634.
Stacked with ANTH F434; LING F434.
Lecture + Lab + Other: 3 + 0 + 0

LING F635 Political Media and Discourses of the American Right
3 Credits
This class uses "hands-on" discourse analytic techniques of student-collected media data in order to examine whether or not there is a unified rhetorical style associated with the American Right; the nature of the relationship between a message, its form and persuasion; and how moral stance are taken in political contexts. Evaluation of the veracity, ethical or historical merits of conservative political stances is not part of the scope of the class.
Prerequisites: Graduate standing.
Cross-listed with ANTH F635; COJO F640.
Stacked with ANTH F435; LING F435; COJO F435.
Lecture + Lab + Other: 3 + 0 + 0
LING F640 Linguistic Anthropology: Language, Thought and Action
3 Credits
Offered As Demand Warrants
Language and social life. Course surveys the history of linguistic anthropology and the methods and questions that have driven and distinguished the field. Topics include descriptive and structural linguistics, the relationship between grammatical categories and linguistic meaning, ethnographic approaches to the study of language and culture, language and social action, linguistic relativity, semiotics, language socialization and language ideologies.
Prerequisites: Graduate standing.
Cross-listed with ANTH F631.
Lecture + Lab + Other: 3 + 0 + 0

LING F650 Language Policy and Planning (a)
3 Credits
Offered Fall Odd-numbered Years
Consideration of minority languages, including Alaska Native Languages, in light of their histories, current status, and factors affecting future maintenance.
Stacked with LING F450.
Lecture + Lab + Other: 3 + 0 + 0

LING F651 Topics in Athabascan Linguistics (a)
3 Credits
Offered As Demand Warrants
Graduate level introduction to important topics in Athabascan linguistics, including both foundational literature and current research. Topics may include laryngeal features; tonogenesis; syntax-morphology interface; argument structure; lexical semantics; and discourse. Course may be repeated once. Cross-listed with ANL F651
Prerequisites: LING F601; graduate standing.
Recommended: LING F603; LING F604.
Lecture + Lab + Other: 3 + 0 + 0

LING F652 Linguistics Applications
3 Credits
Offered As Demand Warrants
In-depth investigation of linguistic problems in selected languages. Includes phonological, morphological, syntactic and semantic issues. Students will produce a grammatical sketch of a chosen language.
Prerequisites: LING F318; LING F320; LING F601; or relevant course work.
Lecture + Lab + Other: 3 + 0 + 0

LING F660 Internship
3 Credits
Offered As Demand Warrants
Student works as an apprentice to a language teacher or a linguist doing fieldwork. Maintain a log and a portfolio of work. If teaching, goal would be to develop appropriate lesson plans and do mentored teaching. If doing fieldwork, goal would be to develop appropriate materials for teaching.
Prerequisites: LING F603; LING F604; ANTH F632 or LING F610.
Lecture + Lab + Other: 3 + 0 + 0

LING F685 Discourse in Society: Analyzing Language in Social Context (s)
3 Credits
Offered Fall Even-numbered Years
Hands-on experience in collection, transcription and analysis of naturally-occurring written and spoken texts. Offers a critical introduction to contemporary usage-based theories of language structure, including cognitive, cultural and interactional explanations for the distribution of linguistic resources in discourse.
Prerequisites: ANTH F631, ANTH F670, LING F602, LING F631 or LING F640.
Cross-listed with ANTH F685.
Stacked with LING F485, ANTH F485.
Lecture + Lab + Other: 3 + 0 + 0

LING F692 Seminar
1-3 Credits
Lecture + Lab + Other: 0 + 0 + 0

LING F692P Seminar
1-3 Credits
Lecture + Lab + Other: 0 + 0 + 0

LING F698 Non-thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

LING F699 Thesis
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

Marine Science and Limnology (MSL)

MSL F111X The Oceans (n, a)
4 Credits
Study of the oceans from the broad perspective offered by combining insights from biology, physics, chemistry and geology. Topics include the evolution of the oceans and marine life, forces acting on water and the resulting currents and waves, and relationships between the physics and chemistry of water bodies and their biological productivity. Societal questions related to fisheries management, global climate change and pollution will be discussed.
Prerequisites: Placement in WRTG F111X; placement in DEVM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

MSL F211 Introduction to Marine Science I
3 Credits
Offered Fall
This is the first part of a two semester sequence in Marine Science: MSL F211, MSL F212, MSL F213L (Lab). This course introduces students to the geology, chemistry and physics of the ocean as well as related topics in the cryosphere and climate. Students will gain a basic understanding of the interconnections between the ocean and atmosphere, and the oceans and the solid earth (the continents and sea floor).
Prerequisites: MATH F151X (may be taken concurrently).
Lecture + Lab + Other: 3 + 0 + 0
MSL F212  Introduction to Marine Science II  
3 Credits  
Offered spring  
This course explores the diversity of marine life, from microbes to mammals, and the interactions of marine organisms with each other and with their environment. Topics include primary productivity, marine food webs, physiological adaptations, and ecology of marine habitats from coastal to deep-sea systems. Students will also be introduced to current topics in marine and fisheries research.  
Prerequisites: MSL F211.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F213L  Marine Science Laboratory  
1 Credit  
Offered spring  
Introductory laboratory course designed to accompany MSL F211-F212 series. Laboratory activities will provide students with hands-on experience to cement topics covered in lectures (MSL F211-F212). Activities include exploration of physical and chemical properties of seawater; geologic and biological classification and introduction to tools for oceanographic data visualization.  
Prerequisites: MSL F212 (may be taken concurrently).  
Lecture + Lab + Other: 0 + 3 + 0  

MSL F215  Marine Geological Drama and Undersea Catastrophes  
3 Credits  
Case studies of geological events that disrupt the ocean environment serve as an introduction to geological oceanography and its connections to other aspects of ocean and Earth history.  
Prerequisites: MSL F111X, or MSL F211.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F216  The Oceans and Global Change  
3 Credits  
Offered Fall Odd-numbered Years  
Explores how global environmental changes are affecting Earth's oceans. Topics include climate change and ocean warming, sea level rise, coastal erosion, declining sea ice, changes in ocean circulation and ecosystems, oceanic uptake of carbon dioxide, ocean acidification, ocean pollution, dead zones and climate engineering. The course will investigate the causes, effects and implications of changes in the oceans.  
Prerequisites: MSL F111X or MSL F211 or ATM F101X or ENVI F101 or GEOG F111X.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F218  Astrobiology: Planets, Oceans and Life  
3 Credits  
Offered Spring  
Study of life in the universe from a transdisciplinary perspective, bringing together insights from physics, astronomy, geology, chemistry and biology. Topics include the evolution of the universe, planets, oceans and life. Past and present oceans found in the Solar System provide case studies from which to examine the potential for life on and off Earth. Societal questions related to the origins of life, global climate change and the possibility of extraterrestrial life will be discussed.  
Prerequisites: WRTG F111X; BIOL F103X or CHEM F103X or GEOS F101X or PHYS F102X.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F220  Scientific Diving  
2 Credits  
Offered Spring  
Introduction to cold water diving and SCUBA techniques used in the research community. Includes familiarization with Alaska subtidal flora and fauna. Opportunity to work underwater and assist with diving projects conducted by MSL F421 students at the Kasitsna Bay Marine Lab during spring break. Completion of this course will allow students to be eligible to join the UAF (AAUS) dive program and to dive on the UAF sanctioned diving projects and have reciprocity to dive with other universities and other government agencies. Through this course, students also can be certified with a Research Diver Specialty (PADI) and a Dry Suit Specialty (PADI). CPR, First Aid (Red Cross), and Emergency Oxygen Administration (DAN) are offered through this course. Special Conditions: Must have current SCUBA physical approved.  
Prerequisites: Basic biology/ecology courses, SCUBA (open water) certification.  
Lecture + Lab + Other: 1 + 1 + 8  

MSL F305  Invertebrate Zoology  
(n)  
4 Credits  
Offered Spring Even-numbered Years  
Classification, structure, function, evolution and life histories of invertebrate animals.  
Prerequisites: BIOL F115X; BIOL F116X.  
Crosslisted with FISH F305; BIOL F305.  
Lecture + Lab + Other: 3 + 3 + 0  

MSL F317  Introduction to Marine Mammal Biology  
3 Credits  
Offered Spring Even-numbered years  
The course will introduce students to the biology and diversity of cetaceans, pinnipeds, sirenians, and other marine mammals. Topics will include evolution, ecology, reproduction, and behavior of marine mammals, their special adaptations, such as diving, osmo- and thermoregulation, and will explore some current conservation and management issues. The course will be structured in a lecture format.  
Prerequisites: BIOL F116X or MSL F212.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F330  The Dynamic Alaskan Coastline  
3 Credits  
Offered Fall  
Mountains, rivers, glaciers, fjords, estuaries, deltas, tidal zones, sediments, nutrients, elements, habitats, fish. This class will provide an interdisciplinary perspective on the dynamic Alaskan coastal landscape from Glacier Bay to the Arctic. We will delve into the driving geological, geochemical, and oceanographic processes occurring along Alaska's coast and linkages to various marine ecosystems. Students will learn the fundamental physical and geochemical processes in the coastal zone using various locations in Alaska as examples. Field trip required.  
Prerequisites: Junior standing; MSL F111X or GEOS F101X; CHEM F105X; PHYS F103X or PHYS F211X.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F403  Estuaries Oceanography  
3 Credits  
Offered Fall  
Advanced class for Marine Science minors, offering an overview of the oceanography of estuaries. The class involves lectures, reading assignments, reviewing and criticizing scientific literature.  
Prerequisites: MSL F212; STAT F200X.  
Lecture + Lab + Other: 3 + 0 + 0
MSL F411  Current Topics in Oceanographic Research  
3 Credits  
Study of research problems from biology, chemistry, geology and physics. Topics include sea floor hydrothermal vents and their indigenous communities, manganese nodules, tsunami prediction, radioisotopes in the sea, Bering Sea productivity and the role of the ocean in global warming due to fossil fuel carbon dioxide.  
Prerequisites: Four semesters of natural sciences at F100-level or above.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F412  Early Life Histories of Marine Invertebrates  
3 Credits  
Offered Fall Odd-numbered Years  
This course will explore the diversity of reproductive strategies and larval forms in marine invertebrates, and consider selective pressures governing the evolution of these forms. Topics include: larval ecology and evolution, environmental constraints on early life histories, reproductive biology, population dynamics, sources of larval mortality, dispersal and recruitment. Graduate standing or instructor permission and invertebrate zoology recommended.  
Prerequisites: MSL F212 and upper-division standing.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F419  Concepts in Physical Oceanography  
3 Credits  
Offered Fall Even-numbered Years  
This course establishes the physical concepts that account for fluid motion of the oceans on our rotating earth. This course will include the role of the Coriolis force, ocean stratification, wind driven and thermohaline circulation, tides and the major ocean gyres and why they are present. The physical forces that influence biological production will be presented. These foundation concepts will be part of a well-rounded undergraduate program in marine science or establish the foundation for graduate students.  
Prerequisites: MATH F251X or PHYS F211X.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F421  Field Course in Subtidal Studies  
2 Credits  
Offered Spring  
Students will propose a hypothesis and experimentally test it during a one-week field trip to the Kasitsna Bay Lab. Prior to field trip, students will develop a proposal, dive plan and materials list in relation to their project. Undergraduates will present their findings in an oral presentation to the class while graduate students will present theirs in a public seminar and produce a conference-ready poster. Special Conditions: Must have a current SCUBA physical approved.  
Prerequisites: MSL F220, basic biology/ecology courses, SCUBA (open water) certification.  
Stacked with MSL F623.  
Lecture + Lab + Other: 1 + 1 + 8

MSL F431  Polar Marine Science  
3 Credits  
Offered Fall Odd-numbered Years  
Physical, biological, chemical and geological oceanography of the polar oceans with emphasis on comparing and contrasting the Arctic and Antarctic.  
Prerequisites: MSL F211; MSL F212.  
Stacked with MSL F621.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F440  Oceanography for Fisheries  
3 Credits  
Offered Fall Even-numbered Years  
Students examine how understanding the oceanographic processes that determine the distribution, recruitment, and abundance of marine vertebrates and invertebrates from global to local scales and from evolutionary time scales to daily scales supports the sustainable management of marine fisheries resources.  
Prerequisites: CHEM F105X, PHYS F103X, FISH F288, STAT F200X.  
Recommended: FISH F425.  
Cross-listed with FISH F440.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F449  Biological Oceanography  
3 Credits  
Offered Fall  
Survey of biological processes emphasizing organic matter synthesis and transfer including topics essential to a basic understanding of contemporary biological oceanography. Primary and secondary production, standing stocks, distribution, and structure and dynamics of phytoplankton and zooplankton populations. The transfer of organic matter to higher trophic levels and food webs. Nutrient cycling, especially but not exclusively nitrogen, phosphorus and silicon, microbiological processes relevant to nutrient cycling. Heterotrophic production, benthic communities, coastal ecosystems, the influence of organisms on the composition of seawater, particularly with reference to oxygen and carbon dioxide regimes. Aspects of regional oceanography.  
Prerequisites: Upper Division standing in a Science major; MSL F212 for undergraduate students.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F450  Marine Biology and Ecology Field Course  
(a)  
4 Credits  
Offered Summer Odd-numbered Years; As Demand Warrants  
Advanced understanding of marine organisms in an ecological and evolutionary context through field and laboratory work at the Kasitsna Bay Marine Lab (Kachemak Bay). Includes collection of marine macroalgae, invertebrates and plankton and relating their anatomical organization to habitat, lifestyle and ecology. Emphasis will be on familiarization with Alaska's nearshore flora and fauna, the ecological function of organisms and ecosystem dynamics. Students will employ different field sampling techniques and experimental designs in various habitats found around the Kasitsna Bay Marine Lab, e.g. rocky intertidal, open water, mudflats, seagrass beds, and salt marshes. Graduate students will perform a research project related to the course subject matter.  
Prerequisites: One year of biology.  
Recommended: Basic courses in ecology and invertebrate zoology.  
Stacked with MSL F651.  
Lecture + Lab + Other: 3 + 6 + 0
Lecture + Lab + Other: BIOL F487. 
Prerequisites: graduate-level courses.

from the marine environment. Prepares students for other quantitative metagenomics and transcriptomics using example datasets derived in computing and programming. Covers methods in genomics, the field of ecology and evolution while providing a basic background offered Spring 2 Credits

MSL F464  Ecological and Evolutionary Genomics
3 Credits
Offered Spring
Under the supervision and mentorship of a fisheries and ocean sciences faculty member, students will complete a self-designed project that is the capstone of a student's exemplary academic performance. The student will complete a senior thesis based on field and/or laboratory data collected during a field course or work that was completed with the faculty mentor within the context of the existing literature relevant to the study topic. Students are required to present their study results as an oral or poster presentation at a UAF seminar or symposium, or at a state or national scientific conference. In addition, students are encouraged to work with their mentor to submit their thesis for publication in a peer-reviewed scientific journal.

Prerequisites: Permission of a fisheries and ocean sciences faculty mentor.

Lecture + Lab + Other: 0 + 0 + 9

MSL F499  Senior Thesis
3 Credits
Under the supervision and mentorship of a fisheries and ocean sciences faculty member, students will complete a self-designed project that is the capstone of a student's exemplary academic performance. The student will complete a senior thesis based on field and/or laboratory data collected during a field course or work that was completed with the faculty mentor within the context of the existing literature relevant to the study topic. Students are required to present their study results as an oral or poster presentation at a UAF seminar or symposium, or at a state or national scientific conference. In addition, students are encouraged to work with their mentor to submit their thesis for publication in a peer-reviewed scientific journal.

Prerequisites: Permission of a fisheries and ocean sciences faculty mentor.

Lecture + Lab + Other: 0 + 0 + 9

MSL F601  Professional Development
1 Credit
Offered Fall

MSL F602  Proposal Writing
1 Credit
Offered Fall; As Demand Warrants

Familiarize students with the proposal writing process. Writing proposals is a common requirement during graduate school and will be continuing during the career as a scientists and researcher. This class aims to cover some common rules about good proposal writing. Students will be required to write a proposal and to give feedback to 1-2 proposals of classmates. Course may be repeated for credit.

Recommended: Graduate status.

Lecture + Lab + Other: 1 + 0 + 0
MSL F604  Modern Applied Statistics for Fisheries
4 Credits
Offered Odd-numbered Years
Covers general statistical approaches to quantitative problems in marine science and fisheries with guidance on how to collect and organize data, how to select appropriate statistical methods and how to communicate results. A variety of advanced statistical methods for analyzing environmental data sets will be illustrated in theory and practice.
Prerequisites: STAT F200X; STAT F401; proficiency in computing with R.
Cross-listed with FISH F604.
Lecture + Lab + Other: 3 + 3 + 0

MSL F605  Controversies in Marine Science
1 Credit
Offered Spring Even-numbered Years
Introduction to the idea that science is fluid and controversies and disagreements do occur. These disagreements are often published in the primary literature. This course will be a discussion/debate of various controversial topics in marine science.
Recommended: Graduate status.
Lecture + Lab + Other: 1 + 0 + 0

MSL F610  Marine Biology
3 Credits
Offered Spring
Biology of the major plant and animal groups in the sea and their roles in pelagic and benthic systems. Physical, chemical and geological features affecting marine organisms and the role of bacteria in the sea. The basic biology and adaptations of selected species of zooplankton and nekton. The benthos-shore biota, shelf and deep-sea organisms: basic biology, trophic roles and adaptations of selected species.
Prerequisites: Degree in biology.
Recommended: Courses in invertebrate zoology, ichthyology, and vertebrate zoology.
Lecture + Lab + Other: 3 + 0 + 0

MSL F612  Early Life Histories of Marine Invertebrates
3 Credits
Offered Fall Odd-numbered Years
This course will explore the diversity of reproductive strategies and larval forms in marine invertebrates, and consider selective pressures governing the evolution of these forms. Topics include: larval ecology and evolution, environmental constraints on early life histories, reproductive biology, population dynamics, sources of larval mortality, dispersal and recruitment. Graduate standing or instructor permission and invertebrate zoology recommended.
Lecture + Lab + Other: 3 + 0 + 0

MSL F613  Veterinary Nutrition and Metabolism
2 Credits
This course will examine the nutritional needs of major species of veterinary importance. Discussion will revolve around specific nutritional needs as they relate to life stages and production status of monogastric and ruminant animals. Course topics deal with the classification and function of nutrients, digestive processes (monogastric, ruminant, hind-gut fermenters), evaluation of feedstuffs and feed labels, and principles of disease related to nutritional deficiency as well as nutritional excess.
Prerequisites: Successful completion of first semester veterinary courses.
Cross-listed with DVM F623.
Lecture + Lab + Other: 2 + 0 + 0

MSL F615  Physiology of Marine Organisms
3 Credits
A study of the physiological systems of and adaptation to the marine environment, intertidal, pelagic, and deep benthos environment and energy flows will be discussed.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

MSL F618  Functional Anatomy
8 Credits
Offered Fall
The course will include an introduction to veterinary anatomy in which the basics veterinary anatomy, orientation, nomenclature, locomotion apparatus, circulatory system, digestive, respiratory apparatus, lymphatic organs and nervous system of domestic animals will be explained. A general explanation of the basic anatomical preparation techniques will be presented to improve the manual skills of the students. The course will place the anatomical knowledge in a clinical context.
Prerequisites: Admittance to the professional veterinary program.
Cross-listed with DVM F616.
Lecture + Lab + Other: 5 + 6 + 0

MSL F619  Biology of Marine Mammals
3 Credits
Offered Spring Odd-numbered Years
Introduction to a broad range of research and conservation topics associated with marine mammals. Topics include physiological adaptations, phylogeny and evolution, behavior, ecology, population dynamics and conservation.
Prerequisites: Graduate standing; or upper-division ecology and biology courses.
Lecture + Lab + Other: 3 + 0 + 0

MSL F620  Physical Oceanography
4 Credits
Offered Fall
Physical description of the sea, physical properties of seawater, methods and measurements, boundary processes, currents, tides and waves, and regional oceanography.
Prerequisites: MATH F253X; PHYS F103X or PHYS F211X; science or engineering degree.
Lecture + Lab + Other: 3 + 3 + 0

MSL F621  Polar Marine Science (a)
3 Credits
Offered Fall Odd-numbered Years
Physical, biological, chemical and geological oceanography of the polar oceans with emphasis on comparing and contrasting the Arctic and Antarctic.
Prerequisites: graduate standing.
Stacked with MSL F431.
Lecture + Lab + Other: 3 + 0 + 0
MSL F623  Field Course in Subtidal Studies  
2 Credits  
Offered Spring  
Students will propose a hypothesis and experimentally test it during a one-week field trip to the Kasitsna Bay Lab. Prior to field trip, students will develop a proposal, dive plan and materials list in relation to their project. Undergraduates will present their findings in an oral presentation to the class while graduate students will present theirs in a public seminar and produce a conference-ready poster. Special Conditions: Must have a current SCUBA physical approved.  
Prerequisites: MSL F220; basic biology/ecology courses; SCUBA (open water) certification.  
Stacked with MSL F421.  
Lecture + Lab + Other: 1 + 1 + 8

MSL F625  Shipboard Techniques  
3 Credits  
Offered As Demand Warrants  
Introduction to modern oceanographic shipboard sampling and analysis techniques.  
Lecture + Lab + Other: 2 + 3 + 0

MSL F627  Statistical Computing with R  
2 Credits  
Offered Fall, As Demand Warrants  
Using the free, open-source software R to teach computing, programming, and modeling concepts for the statistical computing of fisheries and biological data. Prepares students for other graduate-level, quantitative fisheries courses and covers exploratory statistical and graphical analyses, as well as computer-intensive methods such as bootstrapping and randomization tests.  
Prerequisites: STAT F200X, STAT F401, and proficiency with Excel.  
Cross-listed with FISH F627.  
Lecture + Lab + Other: 1 + 3 + 0

MSL F628  Sea Ice Ecology  
(a)  
1 Credit  
Offered As Demand Warrants  
Provides students with an introduction into the physics, chemistry and biology of Arctic and Antarctic sea ice. Topics will include seasonality of sea ice extent, ice microstructure, diversity and activity of biological communities and impacts of climate change on the ice biota.  
Recommended: MSL F650.  
Lecture + Lab + Other: 1 + 0 + 0

MSL F630  Geological Oceanography  
3 Credits  
Offered Spring  
Topography and structure of the ocean floor. Theory of plate tectonics. Geology of ocean basins, continental slope, shelf and coastal environments. Major sediment types and distributions. Sediment transport and deposition. Interaction between seawater, rock, and sediment. Paleoceanography. Upper-division standing are invited to contact the instructor.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F631  Data Analysis in Community Ecology  
3 Credits  
Offered Spring Odd-numbered Years  
This course will provide an overview of statistical methods that have been specifically developed to aid our understanding and interpretation of the structure, abundance, and distribution of species and communities in relation to resources and the environment.  
Prerequisites: STAT F200X; STAT F401; FISH F627 (Statistical Computing with R) or familiarity with R, general ecology, graduate standing in fisheries.  
Cross-listed with FISH F631.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F632  Oceanographic Data Analysis and Visualization  
3 Credits  
Offered Alternate Springs  
This course introduces students to data analysis and visualization techniques commonly applied to oceanographic datasets. Students will gain a theoretical and practical understanding of propagation of errors, linear least squares regression, and time series analyses such as correlation, coherence and spectral estimation. The course will also cover Empirical Orthogonal Function (EOF) analysis. A significant portion of the class will be a project that will give students an opportunity to learn a data analysis technique suited to their research. Matlab will be used throughout.  
Prerequisites: Graduate standing; MATH F253X; MATH F314.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F633  Integrative Oceanography  
3 Credits  
Offered Fall Odd-numbered Years  
This course explores the interactions between physical, chemical and biological processes in the ocean. A wide range of spatial scales will be considered, ranging from the large ocean gyres down to the physiochemical scales on which individual bacteria, phytoplankton and zooplankton function. The course covers case studies that provide examples of the processes, connections and feedbacks that control the biological, chemical and physical variability throughout the oceans. Students will improve their interdisciplinary understanding of oceanography and learn how to apply these concepts in their own research.  
Prerequisites: Graduate standing; MSL F620 or MSL F630 or MSL F650 or MSL F660.  
Lecture + Lab + Other: 3 + 0 + 0

MSL F637  Veterinary Bacteriology and Mycology  
2 Credits  
Offered Spring  
This course will discuss bacterial structure, differences between bacterial families, and fungi and their pathogenesis. The basic principles of bacterial and fungal pathogenesis will be presented. Host response to bacterial or fungal infection, immunity and the role of vaccines in disease prevention will be explained. Note: Effective Spring 2019 this course changed from 3 to 2 credits.  
Prerequisites: Successful completion of first-semester veterinary courses.  
Cross-listed with BIOL F632; DVM F637.  
Lecture + Lab + Other: 2 + 0 + 0
MSL F638  Veterinary Parasitology
2 Credits
Offered Spring
Biology of helminth, arthropod and protozoan pathogens of animals with emphasis on common infectious diseases encountered in veterinary practice will be discussed. In addition, the course will discuss treatment and management options for parasitic infections of domestic animals.
Cross-listed with DVM F638; BIOL F634.
Lecture + Lab + Other: 2 + 0 + 0

MSL F639  Veterinary Virology
2 Credits
Offered Spring
This course will explore current concepts in the field of veterinary virology, with an emphasis on the viral structure, viral genetic material and viral replication strategies of various animal viruses. In addition, mechanisms of viral pathogenesis, prevention and treatment of viral infection will be presented.
Cross-listed with BIOL F639; DVM F639.
Lecture + Lab + Other: 2 + 0 + 0

MSL F640  Fisheries Oceanography
4 Credits
Offered Fall Odd-numbered Years
Oceanography of marine processes affecting commercially important fisheries (finfish and shellfish) and species that affect them. Interactions between fisheries resources and physical, biological, geological and chemical oceanography, as well as climatological and meteorological conditions. Topics include recruitment, transport, natural mortality, predator-prey relationships, competition, distribution and abundance. El Nino/La Nina, regime shifts, and climate change. Emphasis on early life history of fishes. Examples from fisheries and ecosystems worldwide are used.
Prerequisites: MSL F620; MSL F650.
Lecture + Lab + Other: 4 + 0 + 0

MSL F642  Veterinary Pathology/Biology of Disease I
5 Credits
Offered Spring
This course will discuss basic principles of disease with special emphasis on processes likely to be encountered veterinary practice. We will discuss these topics organized by underlying disease mechanism. The discussions will move from general cell mediated processes to more specific disease mechanisms.
Prerequisites: Successful completion of first semester veterinary courses.
Cross-listed with BIOL F640; DVM F640.
Lecture + Lab + Other: 4 + 3 + 0

MSL F650  Biological Oceanography
3 Credits
Offered Fall
Survey of biological processes emphasizing organic matter synthesis and transfer including topics essential to a basic understanding of contemporary biological oceanography. Primary and secondary production, standing stocks, distribution, and structure and dynamics of phytoplankton and zooplankton populations. The transfer of organic matter to higher trophic levels and food webs. Nutrient cycling, especially but not exclusively nitrogen, phosphorus and silicon, microbiological processes relevant to nutrient cycling. Heterotrophic production, benthic communities coastal ecosystems, the influence of organisms on the composition of seawater, particularly with reference to oxygen and carbon dioxide regimes. Aspects of regional oceanography.
Prerequisites: Upper-division standing in a science major.
Lecture + Lab + Other: 3 + 0 + 0

MSL F651  Marine Biology and Ecology Field Course (a)
4 Credits
Offered Summer Odd-numbered Years; As Demand Warrants
Advanced understanding of marine organisms in an ecological and evolutionary context through field and laboratory work at the Kasitsna Bay Marine Lab (Kachemak Bay). Includes collection of marine macroalgae, invertebrates and plankton and relating their anatomical organization to habitat, lifestyle and ecology. Emphasis will be on familiarization with Alaska’s nearshore flora and fauna, the ecological function of organisms and ecosystem dynamics. Students will employ different field sampling techniques and experimental designs in various habitats found around the Kasitsna Bay Marine Lab, e.g. rocky intertidal, open water, mudflats, seagrass beds, and salt marshes. Graduate students will perform a research project related to the course subject matter.
Prerequisites: One year of biology; graduate standing.
Recommended: Basic courses in ecology and invertebrate zoology.
Stacked with MSL F450.
Lecture + Lab + Other: 3 + 6 + 0

MSL F652  Marine Ecosystems
3 Credits
Offered Fall Even-numbered Years
Understanding ecosystems of the sea in the context of evaluating the impact of human activities. Focus on current concepts, trends and perspectives.
Prerequisites: BIOL F472; MSL F620; MSL F650.
Lecture + Lab + Other: 3 + 0 + 0

MSL F653  Zooplankton Ecology
3 Credits
Offered Fall As Demand Warrants
Survey of marine zooplankton including processes and variables which influence their production and dynamics. Emphasis on the northeast Pacific and Arctic Ocean zooplankton communities. Field and lab methods for sampling include fixing, preserving, subsampling, identifying and quantifying zooplankton collections. Laboratory techniques for culture of zooplankton include physiological measurements of bioenergetic parameters. Course is offered outside of Fairbanks by video conference.
Prerequisites: MSL F650.
Cross-listed with FISH F653.
Lecture + Lab + Other: 3 + 0 + 0
MSL F654  Benthic Ecology
3 Credits
Ecology of marine benthos, from subtidal to hadal zone. Methods of collecting, sorting, narcotizing, preserving and analyzing benthic assemblages, including video analytical techniques from submersibles and ROVs. Hydrothermal vent and cold seep assemblages. Physiology/energetics of benthic organisms, including animal-sediment relationships, feeding, reproduction and growth. Depth, spatial and latitudinal distribution patterns. NOTE: This course is taught in Juneau and Fairbanks.
Prerequisites: Invertebrate zoology course, marine biology course.
Cross-listed with FISH F654.
Lecture + Lab + Other: 3 + 0 + 0

MSL F656  Kelp Forest Ecology
4 Credits
Offered Summer Even-numbered Years; As Demand Warrants
Introduction to knowledge, hypotheses and disputes regarding components of nearshore tidal communities and the ecological interactions that influence their structure and dynamics. Includes primary published literature in marine subtidal ecology, and local Alaska subtidal flora and fauna. Work underwater conducting ecological research. Includes formulating questions, collecting and analyzing ecological data, report writing and feedback.
Prerequisites: UAF Science Diver certification.
Stacked with MSL F456.
Lecture + Lab + Other: 28 + 35 + 0

MSL F660  Chemical Oceanography
3 Credits
Offered Spring
An integrated study of the chemical, biological, geological and physical processes that determine the distribution of chemical variables in the sea. Topics include biogeochemical cycles and the use of tracers to follow these complex chemical cycles. The chemistry of carbon is considered in detail. Interactions with the atmosphere and lithosphere (including implications of the mid-ocean ridge vent system to ocean chemistry) are examined.
Prerequisites: Graduate standing.
Cross-listed with CHEM F660.
Stacked with MSL F461.
Lecture + Lab + Other: 3 + 0 + 0

MSL F661  Stable Isotope Techniques in Environmental Research
3 Credits
Offered Spring Even-numbered Years
An examination of the use of added or naturally occurring isotope tracers in ecological studies. Demonstration of equipment and modern techniques.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

MSL F663  Chemical Coastal Processes
3 Credits
Offered Spring; As Demand Warrants
A study of chemical processes in the coastal ocean. This course will examine chemical interactions at different boundaries, and explore physical and biological controls on the chemistry of coastal environments. Some of the topics to be covered include: The role of suspended particles; coastal acidification, photochemical processes; controls on coastal productivity; future challenges in coastal management. This course is intended for students with a background in general chemistry and marine science.
Prerequisites: Graduate standing.
Stacked with MSL F463.
Lecture + Lab + Other: 3 + 0 + 0

MSL F667  Introduction to Marine Macroalgae
3 Credits
Offered As Demand Warrants
Introduction to marine macroalgae. Includes algal structure, function and ecology, basic knowledge of the major phyla, key and press algae and local Alaska flora. Includes a four to five day field trip to Kasitsna Bay Marine Laboratory.
Prerequisites: Upper-division standing in a natural science for undergraduates or graduate standing.
Stacked with MSL F467.
Lecture + Lab + Other: 2 + 3 + 0

MSL F676  Aquatic Food Web Ecology
3 Credits
Offered Fall Even-numbered Years
This course will examine theoretical and applied aspects of aquatic food web ecology, from the ecological processes that give rise to patterns in aquatic communities to the incorporation of trophic interactions into ecosystem-based management. Lectures and discussion will focus on ecological theory and case studies. Lab exercises will introduce empirical and modeling approaches for studying food web interactions. Proficiency with Excel and basic statistics is preferred.
Prerequisites: FISH F425.
Cross-listed with FISH F676.
Lecture + Lab + Other: 2 + 3 + 0

MSL F680  Marine Sustainability Internship
2 Credits
Offered Fall
Internship program in marine ecosystem sustainability to broaden students’ interdisciplinary training, develop new research tools, build expertise outside their home discipline, gain exposure to careers, and gain a unique perspective on research problems. Internships are for a minimum of 8 weeks and take place during the summer. In the autumn students report on and meet to discuss their internship experiences.
Prerequisites: MSL F652.
Cross-listed with FISH F680 and ANTH F680.
Lecture + Lab + Other: 0 + 0 + 5-16

MSL F692  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

MSL F692A  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

MSL F692B  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0
Master of Business Administration (MBA)

**MBA F602** Accounting for Managers
3 Credits
Offered Fall or Spring
A complete and balanced treatment of the concepts, procedures and uses of financial accounting. Coverage includes the accounting cycle, accounting principles, mass processing of transactions, internal control, inventories and merchandising operations, long-lived assets and liabilities, corporate accounting and reporting, partnership accounting, financial statements, funds flow analysis, cost systems for manufacturing operations, and managerial accounting. Note: This course is NOT an approved elective for M.B.A. students.

**Prerequisites:** Graduate standing, or approval of the MBA director.

**Lecture + Lab + Other:** 3 + 0 + 0

**MBA F605** Contemporary Topics in Accounting
3 Credits
Offered Fall or Spring, As Demand Warrants
An advanced seminar designed to meet the accounting needs of managers. These topics can range from taxes to management control systems. May be taken twice for credit when topic changes.

**Prerequisites:** MBA F602; graduate standing, or permission of the MBA director.

**Lecture + Lab + Other:** 3 + 0 + 0

**MBA F607** Human Resources Management
3 Credits
Offered Spring
The study of the effective management of human resources in organizations to include employee planning and recruiting, selection and orientation, training and career development, performance evaluation, compensation, EEO, occupational safety and health, and labor relations.

**Prerequisites:** Admission to the MBA program, or permission of the MBA director.

**Lecture + Lab + Other:** 3 + 0 + 0

**MBA F617** Organizational Theory for Managers
3 Credits
Offered Spring
Overview of the history, concepts, literature and applications in organizational theory. Emphasis on applications and cases applying organizational theory concepts to management.

**Prerequisites:** Admission to the MBA program, or permission of the MBA director.

**Lecture + Lab + Other:** 3 + 0 + 0

**MBA F620** Portfolio Theory and Asset Pricing
3 Credits
Offered As Demand Warrants
Examination of modern normative portfolio theory and asset pricing. Includes mathematics of portfolio analysis, single-period risk and return measures, and the process of optimal portfolio selection.

**Prerequisites:** Admission to the MBA program, MBA F680, or permission of the MBA Director.

**Lecture + Lab + Other:** 3 + 0 + 0

**MBA F624** Controllership
3 Credits
Offered As Demand Warrants
An advanced course designed to meet the accounting needs of managers. Topics of study include evaluating the design and implementation of management control systems and making recommendations for efficiency and effectiveness, recognizing the ethical, environmental, legal/regulatory, political and social issues embedded within the design, evaluation and effective implementation of management control systems.

**Prerequisites:** MBA F602; Must be admitted to MBA program; or permission of MBA Director.

**Lecture + Lab + Other:** 3 + 0 + 0

**MBA F627** Business Law and Ethics
3 Credits
This course will focus on the legal, ethical and practical aspects of business law. The primary goal is to better prepare graduate students for their roles as leaders in the business world. In this course M.B.A. students will learn from a practical standpoint how to take the necessary legal steps to guide a business through the legal maze that awaits them. The course will additionally target the decision-making process from an ethical standpoint. Students will have a thorough understanding of the various areas of business law, allowing them to make legal and ethical decisions in the future.

**Prerequisites:** Admission to the MBA program.

**Lecture + Lab + Other:** 3 + 0 + 0

**MBA F630** Derivative Securities
3 Credits
Offered As Demand Warrants
Derivative securities including options strategies, binomial and Black-Scholes pricing models, commodity and interest-rate futures, hedging strategies using options and futures, and risk management.

**Prerequisites:** Admission to the MBA program, MBA F620, or permission of the MBA director.

**Lecture + Lab + Other:** 3 + 0 + 0
MBA F632  Project Management  
3 Credits  
Offered As Demand Warrants  
This course is designed to cover key components of project management fundamentals with emphasis on the project life cycle, project definition, project schedule and cost management, human resource allocation and the challenges facing project managers in every industry. We will focus on concepts, theories and best practices, while discussing managing and leading project teams in complex environments.  
Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program director.  
Cross-listed with HSEM F632.  
Lecture + Lab + Other: 3 + 0 + 0

MBA F642  Economics of Environmental and Business Sustainability  
3 Credits  
Offered As Demand Warrants  
This course is designed to examine the emerging role of the business and corporate sector in responding to the economic challenges of achieving social and ecological sustainability. The microeconomic theory used to model business behavior motivated by profit maximization is expanded to an accounting framework, referred to as the triple bottom line (TBL). The TBL consists of profits, people and planet. The TBL motivates companies to measure financial, social and environmental outcomes associated with their business operations. The course investigates alternative measurements for evaluating the performance of the economy and the business and consumer sectors.  
Prerequisites: Must be admitted to the MBA program.  
Lecture + Lab + Other: 3 + 0 + 0

MBA F643  Marketing Management  
3 Credits  
Offered Fall or Spring  
Provides managerial approach to examining processes for identifying prospective opportunities, as well as review of marketing mix elements relating to planning, developing and implementing marketing plans. Topics include market segmentation, buyer behavior, product policy and strategy, pricing, promotion and sales force management, distribution channel policy, competitive behavior, market research and marketing ethics.  
Prerequisites: Admission to the MBA program; or permission of the MBA director.  
Lecture + Lab + Other: 3 + 0 + 0

MBA F665  Strategic Collaboration  
3 Credits  
Offered As Demand Warrants  
This course is designed to explore the techniques of collaboration and communication and their strategic use in managing contemporary organizations. Students will identify their own communication style and how to deploy it in various managerial situations. Topics will include exploring individual personality type and the effect of type on collaboration style, identifying the purposes for types of communication, conflict and collaboration, the presentation of data and results. Emergency communication will also be explored. Students will work on improving practical skills such as listening, writing, and creating and delivering presentations.  
Prerequisites: Must be admitted to the MSDM or MBA program; or permission of MSDM or MBA program manager.  
Cross-listed with HSEM F665.  
Lecture + Lab + Other: 3 + 0 + 0

MBA F673  Innovation Management  
3 Credits  
Offered As Demand Warrants  
Overview of the skills a manager needs to administer an innovation systems and toolkit for dealing with various innovation issues in a broad business setting. Topics include creation innovation diversity; innovation dynamics, intellectual properties, technology/innovation commercialization, and innovation strategies.  
Prerequisites: Graduate standing or approval of the MBA director.  
Lecture + Lab + Other: 3 + 0 + 0

MBA F674  New Venture Development  
3 Credits  
Offered Spring  
This course will provide students with a venue for commercializing their own or selected innovative ideas through focused student in several key areas of entrepreneurship. The hands-on approach and experience will teach specific methods to assess and understand the industry, customers and competitors for a new venture. Students will then learn to translate those insights into a winning venture idea, a business model and a set of distinctive new products and services. With this venture strategy in hand, students will then learn how to best raise venture financing, how to write a power business plan and create a compelling pitch for investors. Topics in this course include the meaning of entrepreneurship, concept to new venture, opportunity and feasibility study, intellectual property protection, strategic management, marketing strategies, new venture financing and human capital management.  
Prerequisites: Must be admitted to the MBA program.  
Lecture + Lab + Other: 3 + 0 + 0

MBA F675  Quantitative Methods for Managers  
3 Credits  
Offered Fall  
An in-depth treatment of quantitative research methods in an applied context. The usefulness of those techniques to the managerial decision-making process. Research skills are presented as a set of tools that enable managers to make better decisions.  
Prerequisites: STAT F200X; admission to the MBA program; or permission of MBA director.  
Lecture + Lab + Other: 3 + 0 + 0

MBA F680  Financial Markets and Strategy  
3 Credits  
Offered Fall  
Description of capital markets, development of the major financial theories that explain how to value financial instruments, and examination of how these theories can be used by corporations to evaluate real investments. How firms choose among the various instruments available to them for financing operations and how these instruments help firms manage risks. These corporate financial decisions are viewed as part of the overall corporate strategy of firms, affecting investment and operating strategies, product market strategies, and the ways in which executives are compensated.  
Prerequisites: Admission to the MBA program; MBA F675; or permission of MBA director.  
Lecture + Lab + Other: 3 + 0 + 0
MBA F681  
Fixed Income Securities and Markets  
3 Credits  
Offered Fall  
Fixed income securities and markets including treasury, agency, mortgage-backed and corporate securities, municipal bonds and derivatives. Introduces technical issues relating to duration, convexity and bond-portfolio management.  
**Prerequisites:** Admission to the MBA program; MBA F630; or permission of MBA director.  
**Lecture + Lab + Other:** 3 + 0 + 0

MBA F682  
Financial Statement Analysis  
3 Credits  
Offered Fall  
How to comprehend and critically evaluate financial statements. Building on topics introduced in a first-year course in financial accounting, analyze additional disclosures typically included in financial statements. These activities will be useful in tasks related to valuation, credit decisions, competitor assessment and bankruptcy predictions.  
**Prerequisites:** Admission to the MBA program; or permission of MBA director.  
**Lecture + Lab + Other:** 3 + 0 + 0

MBA F683  
Advanced Topics in Marketing  
3 Credits  
Offered As Demand Warrants  
Current topics and issues in marketing management, such as political and services marketing, marketing communications, marketing in Alaska or other relevant subjects. Note: May be taken twice for credit when topic changes.  
**Prerequisites:** Admission to the MBA program; MBA F643; or permission of MBA director.  
**Lecture + Lab + Other:** 3 + 0 + 0

MBA F690  
Corporate Strategy  
3 Credits  
Offered Spring  
An integrative approach to strategy formation and implementation (decision-making) to achieve organization goals. Students will be introduced to theoretical perspectives and associated methodologies directed toward resolving the unstructured problems and opportunities which confront general managers at the highest levels of an organization. MBA F690 is an advanced seminar taken during the student's last spring semester.  
**Prerequisites:** Admission to the MBA program; MBA F617; MBA F675; MBA F680; or permission of MBA director.  
**Lecture + Lab + Other:** 3 + 0 + 0

MBA F691  
Advanced Topics in Business  
3 Credits  
Offered As Demand Warrants  
Developing managers' ability to excel in specialized areas of business such as entrepreneurship and risk management. Note: May be taken twice for credit when topic changes.  
**Prerequisites:** Admission to the MBA program; or permission of MBA director.  
**Lecture + Lab + Other:** 3 + 0 + 0

Mathematics (MATH)  

MATH F113X  
Numbers and Society  
(m)  
3 Credits  
Numbers and data help us understand our society. In this course, we develop mathematical concepts and tools to understand what numbers and data can tell us. Topics may include the mathematics of elections and voting, modeling population growth, financial mathematics, polls and surveying, and introductory probability and descriptive statistics. Note: This course may be taken independently from Math F114X, and both courses can be taken for credit in either order.  
**Prerequisites:** An appropriate score on the math placement test, or DEVM F105, DEVM F105N, or DEVM F105J.  
**Attributes:** UAF GER Mathematics Req  
**Lecture + Lab + Other:** 3 + 0 + 0

MATH F114X  
Patterns and Society  
3 Credits  
Patterns are present in every aspect of daily life. In this course, we develop mathematical concepts and tools to understand what patterns can tell us. Topics may include dividing things fairly; determining efficient routes and schedules; analyzing networks and their properties; the mathematics of symmetry, fractal geometry, and patterns in nature. Note: This course may be taken independently from MATH F113X, and both courses can be taken for credit in either order.  
**Prerequisite:** An appropriate score on the math placement test, DEVM F105, DEVM F105N or DEVM F105J.  
**Attributes:** UAF GER Mathematics Req  
**Lecture + Lab + Other:** 3 + 0 + 0

MATH F122R  
Prep for Essential Precalculus with Applications  
1 Credit  
An intensive, individualized review of prerequisite topics needed in Essential Precalculus with Applications along with small group practice of related functions topics. Emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in precalculus for business. Note: Credit may be earned for taking MATH F122R or MATH F122, but not for both.  
**Prerequisites:** Previous W or grade below C- in MATH F122X; or placement into MATH F122X; or departmental recommendation.  
**Lecture + Lab + Other:** 0.7 + 1 + 0

MATH F122S  
Essential Precalculus with Applications Skills Workshop  
1 Credit  
Directed study of topics in MATH F122X; emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in precalculus and mathematics-based courses. Note: Credit may be earned for taking MATH F122R or MATH F122S, but not for both.  
**Prerequisites:** Previous W or grade below C- in MATH F122X; or placement into MATH F122X; or departmental recommendation.  
**Corequisite:** MATH F122X.  
**Lecture + Lab + Other:** 0.5 + 1.5 + 0
MATH F122X  Essential Precalculus with Applications  (m)  3 Credits
A study of various classes of functions, exploring their numeric, algebraic and graphical aspects. Function classes include linear, quadratic, rational, exponential and logarithmic. This course is appropriate for students in programs relating to business and economics or life sciences or students intending to take MATH F230X. Note: Credit may be earned for MATH F151X or MATH F122X, but not for both.
Prerequisites: Appropriate placement score, DEV F105, DEV F105N or DEV F105J. For students who have previously received a grade below C- or a W in MATH F122X: MATH F122R or MATH F122S (MATH F122S must be taken concurrently).
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 3 + 0 + 0

MATH F151R  Prep for College Algebra for Calculus  1 Credit
An intensive, individualized review of prerequisite topics needed in College Algebra for Calculus along with small group practice of related topics. Emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in College Algebra for Calculus. Note: Credit may be earned for taking MATH F151R or MATH F151S, but not for both.
Prerequisites: Previous W or grade below C- in MATH F151X; or placement into MATH F151X; or departmental recommendation.
Corequisites: MATH F151X.
Lecture + Lab + Other: 0.7 + 1 + 0

MATH F151S  College Algebra for Calculus Skills Workshop  1 Credit
Directed study of topics in College Algebra for Calculus along with small group practice of related topics. Emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in precalculus and mathematics-based courses. Note: Credit may be earned for taking MATH F156R or MATH F156S, but not for both.
Prerequisites: Previous W or grade below C- in MATH F151X; or placement into MATH F151X; or departmental recommendation.
Corequisites: MATH F151X.
Lecture + Lab + Other: 0.5 + 1.5 + 0

MATH F151X  College Algebra for Calculus  (m)  4 Credits
Study of algebraic, logarithmic and exponential functions; systems of equations; applications. Note: Credit may be earned for MATH F151X or MATH F122X, but not for both. Note: Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.
Prerequisites: Appropriate score on the math placement test, B or better in DEV F105, B or better in DEV F105J or C or better in DEV F105N; For students who have previously received a grade below C- or a W in MATH F151X: MATH F151R or MATH F151S (MATH F151S must be taken concurrently).
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 4.5 + 0 + 0

MATH F152X  Trigonometry  (m)  3 Credits
A study of trigonometric functions including graphing, identities, inverse trigonometric functions, solving equations and polar coordinates; applications. Note: Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.
Prerequisites: MATH F151X (may be taken concurrently) or placement.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 3 + 0 + 0

MATH F156X  Precalculus  (m)  4 Credits
Various classes of functions and their graphs are explored numerically, algebraically and graphically. Function classes include polynomial, rational, exponential, logarithmic and trigonometric. Skills and concepts needed for calculus are emphasized. This class is intended for students intending to take MATH F251X. Note: Only eight credits total may be earned from MATH F151X, MATH F152X and MATH F156X.
Prerequisites: Placement into MATH F156X; For students who have previously received a grade below C- or a W in MATH F156X: MATH F156R or MATH F156S (MATH F156S must be taken concurrently).
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 4 + 1 + 0

MATH F211  Mathematics for Elementary School Teachers  (m)  3 Credits
Elementary set theory, numeration systems, and algorithms of arithmetic, divisors, multiples, integers and introduction to rational numbers. Emphasis on classroom methods. Restricted to Elementary Education majors; others by permission of instructor.
Prerequisites: MATH F122X; or MATH F151X; or MATH F156X; or placement.
Lecture + Lab + Other: 3 + 1 + 0

MATH F212  Mathematics for Elementary School Teachers II  (m)  3 Credits
Offered Spring
A continuation of MATH F211. Real number systems and subsystems, logic, informal geometry, metric system, probability and statistics. Emphasis on classroom methods.
Prerequisites: MATH F211.
Lecture + Lab + Other: 3 + 1 + 0
MATH F230R  Prep for Essential Calculus with Applications
1 Credit
An intensive, individualized review of prerequisite topics needed in Essential Calculus with Applications along with small group practice of related topics. Emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in calculus. Note: credit may be earned for taking MATH F230R or MATH F230S, but not for both.
Prerequisites: Previous W or grade below C- in MATH F230X; or placement into MATH F230X; or department recommendation.
Lecture + Lab + Other: 0.7 + 1 + 0

MATH F230S  Essential Calculus with Applications Skills Workshop
1 Credit
Directed study of topics in MATH F230X; emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in calculus and other mathematics-based courses. Note: credit may be earned for taking MATH F230R or MATH F230S, but not for both.
Prerequisites: Previous W or grade below C- in MATH F230X; or placement into MATH F230X; or department recommendation.
Corequisites: MATH F230X.
Lecture + Lab + Other: 0.5 + 1.5 + 0

MATH F230X  Essential Calculus with Applications
3 Credits
An introduction to the key ideas of differential and integral calculus, and their uses in business, economics and the life sciences. This course emphasizes a solid conceptual understanding, along with calculation techniques for basic applications. Note: Credit cannot be earned for both MATH F230X and MATH F251X. MATH F230X cannot serve as a prerequisite for MATH F252X.
Prerequisites: MATH F122X; or MATH F151X; or MATH F156X; or placement into MATH F230X; or department recommendation.
Corequisites: MATH F230X.
Lecture + Lab + Other: 3 + 0 + 0

MATH F251L  Calculus I Recitation
0 Credit
Offered Fall and Spring
Recitation section for Calculus I. Activities may include worksheets, quizzes and problem sessions associated with corresponding lecture material from MATH F251X.
Corequisites: MATH F251X.
Lecture + Lab + Other: 0 + 1 + 0

MATH F251R  Prep for Calculus
1 Credit
An intensive, individualized review of prerequisite topics needed in calculus along with small group practice of related topics. Emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in calculus. Note: credit may be earned for taking MATH F251R or MATH F251S, but not for both.
Prerequisites: Previous W or grade below C- in MATH F251X; or placement into MATH F251X; or departmental recommendation.
Lecture + Lab + Other: 0.7 + 1 + 0

MATH F251S  Calculus I Skills Workshop
1 Credit
Directed study of topics in MATH F251X, emphasis will be placed on problem solving and mathematical communication. Also included will be instruction on how to be successful in Calculus I and mathematics-based courses. Note: Credit may be earned for taking MATH F251R or MATH F251S, but not for both.
Prerequisites: Previous W or grade below C- in MATH F251X; or placement into MATH F251X; or departmental recommendation.
Corequisites: MATH F251X.
Lecture + Lab + Other: 0.5 + 1.5 + 0

MATH F251X  Calculus I (m)
4 Credits
A first course in single-variable calculus. Topics include limits; continuity and differentiation of functions; applications of the derivative to graphing, optimization, and rates of change; definite and indefinite integration; and the Fundamental Theorem of Calculus. Note: Credit may not be earned for both MATH F251X and MATH F230X.
Prerequisites: Appropriate score on the math placement test; or MATH F151X and MATH F152X; or MATH F156X; For students who have previously received a grade below C- or a W in MATH F251X: MATH F251R or MATH F251S (MATH F251S must be taken concurrently).
Corequisites: MATH F251L.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 4 + 0 + 0

MATH F252X  Calculus II (m)
4 Credits
Further topics in single-variable calculus, including techniques of integration; applications of integration; convergence of sequences and series; parameterized curves; and polar coordinates.
Prerequisites: MATH F251X.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 4 + 1 + 0

MATH F253X  Calculus III (m)
4 Credits
Multivariable calculus. Topics include vectors in 2- and 3-dimensions; differential calculus of functions of several variables; multiple integration; vector calculus, including Green's and Stokes' Theorem; and applications.
Prerequisites: MATH F252X.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 4 + 0 + 0

MATH F265  Introduction to Mathematical Proofs (m)
3 Credits
Offered Spring
Emphasis on proof techniques with topics including logic, sets, cardinality, relations, functions, equivalence, induction, number theory, congruence classes and elementary counting. In addition, a rigorous treatment of topics from calculus or a selection of additional topics from discrete mathematics may be included.
Prerequisites: MATH F252X (may be taken concurrently).
Lecture + Lab + Other: 3 + 0 + 0

MATH F302  Differential Equations
3 Credits
Nature and origin of differential equations, first order equations and solutions, linear differential equations with constant coefficients, systems of equations, power series solutions, operational methods, and applications.
Prerequisites: MATH F253X.
Lecture + Lab + Other: 3 + 0 + 0
MATH F305 Geometry
3 Credits
Offered Spring Even-numbered Years
Topics selected from such fields as Euclidean and non-Euclidean plane geometry, affine geometry, projective geometry, and topology.
Prerequisites: MATH F265; MATH F314.
Recommended: MATH F253X.
Lecture + Lab + Other: 3 + 0 + 0

MATH F307 Discrete Mathematics
3 Credits
Logic, counting, sets and functions, recurrence relations, graphs and trees. Additional topics chosen from probability theory.
Prerequisites: MATH F252X.
Lecture + Lab + Other: 3 + 0 + 0

MATH F310 Numerical Analysis
3 Credits
Offered Fall
Direct and iterative solutions of systems of equations, interpolation, numerical differentiation and integration, numerical solutions of ordinary differential equations, and error analysis.
Prerequisites: MATH F302 or MATH F314.
Recommended: Knowledge of programming.
Lecture + Lab + Other: 3 + 0 + 0

MATH F314 Linear Algebra
3 Credits
Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations and characteristic values. Inner product spaces.
Prerequisites: MATH F252X.
Lecture + Lab + Other: 3 + 0 + 0

MATH F316 Introduction to the History and Philosophy of Mathematics
3 Credits
Offered Spring Odd-numbered Years
Important periods in the history of mathematics, including the mathematics of Ancient Babylon, Mesopotamia, Greece, China and India; mathematics of medieval Europe, the Middle East and the Renaissance; the development of geometry, algebra and calculus. Other areas in the development of mathematics and the philosophy of mathematics will be studied as time permits. For students of mathematics, science, history and philosophy.
Prerequisites: MATH F253X; MATH F265.
Lecture + Lab + Other: 3 + 0 + 0

MATH F320 Topics in Combinatorics
3 Credits
Offered Fall Odd-numbered Years
Introduction to some fundamental ideas of combinatorics. Topics selected from such fields as enumerative combinatorics, generating functions, set systems, recurrence relations, directed graphs, matchings, Hamiltonian and Eulerian graphs, trees and graph colorings.
Prerequisites: MATH F252X.
Lecture + Lab + Other: 3 + 0 + 0

MATH F321 Number Theory
3 Credits
Offered Fall Even-numbered Years
The theory of numbers is concerned with the properties of the integers, one of the most basic of mathematical sets. Seemingly naive questions of number theory stimulated much of the development of modern mathematics and still provide rich opportunities for investigation. Topics studied include classical ones such as primality, congruences, quadratic reciprocity and Diophantine equations, as well as more recent applications to cryptography. Additional topics such as continued fractions, elliptical curves or an introduction to analytic methods may be included.
Prerequisites: MATH F265.
Lecture + Lab + Other: 3 + 0 + 0

MATH F371 Probability
3 Credits
Offered Fall Odd-numbered Years
Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions and characteristic functions.
Prerequisites: MATH F253X.
Lecture + Lab + Other: 3 + 0 + 0

MATH F401 Introduction to Real Analysis (W)
3 Credits
Offered Fall
Completeness of the real numbers and its consequence, convergence of sequences and series, limits and continuity, differentiation, the Riemann integral.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F253X; MATH F265.
Lecture + Lab + Other: 3 + 0 + 0

MATH F404 Introduction to Topology
3 Credits
Offered Spring
Introduction to topological spaces, set theory, open sets, compactness, connectedness, product spaces, metric spaces and continua.
Prerequisites: MATH F253X; MATH F265.
Recommended: MATH F314 and/or MATH F405.
Lecture + Lab + Other: 3 + 0 + 0

MATH F405 Abstract Algebra (W)
3 Credits
Offered Spring
Theory of groups, rings and fields.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F265.
Recommended: MATH F307 and/or MATH F314.
Lecture + Lab + Other: 3 + 0 + 0

MATH F408 Mathematical Statistics
3 Credits
Offered Spring Even-numbered Years
Distribution of random variables and functions of random variables, interval estimation, point estimation, sufficient statistics, order statistics, and test of hypotheses including various criteria for tests.
Prerequisites: MATH F371; STAT F200X.
Lecture + Lab + Other: 3 + 0 + 0
MATH F412  Differential Geometry  
3 Credits  
Offered Spring Odd-numbered Years  
Introduction to the differential geometry of curves, surfaces, and Riemannian manifolds. Basic concepts covered include the Frenet-Serret apparatus, surfaces, first and second fundamental forms, geodesics, Gaussian curvature and the Gauss-Bonnet Theorem. Time permitting, topics such as minimal surfaces, theory of hypersurfaces and/or tensor analysis may be included.  
Prerequisites: MATH F314; MATH F401.  
Lecture + Lab + Other: 3 + 0 + 0  

MATH F421  Applied Analysis  
4 Credits  
Offered Fall  
Vector calculus, including gradient, divergence, and curl in orthogonal curvilinear coordinates, ordinary and partial differential equations and boundary value problems, and Fourier series and integrals.  
Prerequisites: MATH F302.  
Lecture + Lab + Other: 4 + 0 + 0  

MATH F422  Introduction to Complex Analysis  
3 Credits  
Offered Spring  
Complex functions including series, integrals, residues, conformal mapping and applications. May be taken independently of MATH F421.  
Prerequisites: MATH F302.  
Lecture + Lab + Other: 3 + 0 + 0  

MATH F430  Topics in Mathematics  
3 Credits  
Offered Fall  
An elective course in mathematics for majors. Topics will vary from year to year and may be drawn from mathematical biology, numerical linear algebra, graph theory, logic, or other areas of mathematics. May be repeated with permission of instructor for a total of nine credits.  
Prerequisites: MATH F265.  
Lecture + Lab + Other: 3 + 0 + 0  

MATH F460  Mathematical Modeling  
3 Credits  
Offered Fall Odd-numbered Years  
Introduction to mathematical modeling using differential or difference equations. Emphasis is on formulating models and interpreting qualitative behavior such models predict. Examples will be taken from a variety of fields, depending on the interest of the instructor. Students develop a modeling project.  
Prerequisites: COJO F141X or WRTG F211X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MATH F252X.  
Recommended: one or more of MATH F302, MATH F310, MATH F314, MATH F401, STAT F300 or some programming experience.  
Lecture + Lab + Other: 3 + 0 + 0  

MATH F490  Senior Seminar  
2 Credits  
Offered Spring  
Advanced topics selected from areas outside the usual undergraduate offerings. A substantial level of mathematical maturity is assumed.  
Prerequisites: COJO F141X or COJO F141X; at least one of MATH F401 or MATH F405; senior standing.  
Lecture + Lab + Other: 2 + 0 + 0  

MATH F600  Teaching Seminar  
1 Credit  
Fundamentals of teaching mathematics in a university setting. Topics may include any aspect of teaching: university regulations, class and lecture organization, testing, book selection, teaching evaluations, etc. Specific topics will vary on the basis of student and instructor interest. Individual classroom visits will also be used for class discussion. May be repeated for credit.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 1 + 0 + 0  

MATH F611  Mathematical Physics I  
3 Credits  
Offered Fall  
Mathematical tools and theory for classical and modern physics. Core topics: Linear algebra including eigenvalues, eigenvectors and inner products in finite dimensional spaces. Infinite series. Hilbert spaces and generalized functions. Complex analysis, including Laurent series and contour methods. Applications to problems arising in physics. Selected additional topics, which may include operator and spectral theory, groups, tensor fields, hypercomplex numbers.  
Prerequisites: MATH F302; MATH F314; MATH F421; MATH F422.  
Cross-listed with PHYS F611.  
Lecture + Lab + Other: 3 + 0 + 0  

MATH F612  Mathematical Physics II  
3 Credits  
Offered Spring  
Prerequisites: PHYS F611 or MATH F611.  
Cross-listed with PHYS F612.  
Lecture + Lab + Other: 3 + 0 + 0  

MATH F614  Numerical Linear Algebra  
3 Credits  
Offered Fall Odd-numbered Years  
Prerequisites: MATH F314.  
Recommended: MATH F421 or MATH F401.  
Lecture + Lab + Other: 3 + 0 + 0
MATH F615  Numerical Analysis of Differential Equations
3 Credits
Offered Spring Odd-numbered Years
Review of numerical differentiation and integration, and the numerical solution of ordinary differential equations. Main topics to include the numerical solution of partial differential equations, curve fitting, splines, and the approximation of functions. Supplementary topics such as the numerical method of lines, the fast Fourier transform, and finite elements may be included as time permits and interest warrants.
Prerequisites: CS F201; MATH F310; MATH F314; MATH F421; MATH F422.
Lecture + Lab + Other: 3 + 0 + 0

MATH F617  Functional Analysis
3 Credits
Offered Spring Even-numbered Years
Study of Banach and Hilbert spaces, and continuous linear maps between them. Linear functionals and the Hahn-Banach theorem. Applications of the Baire Category theorem. Compact operators, self adjoint operators, and their spectral properties. Weak topology and its applications.
Prerequisites: MATH F314; MATH F401.
Recommended: MATH F422; MATH F461.
Lecture + Lab + Other: 3 + 0 + 0

MATH F631  Algebra I
4 Credits
Offered Fall Even-numbered Years
Rigorous development of groups, rings and fields.
Prerequisites: MATH F405.
Lecture + Lab + Other: 4 + 0 + 0

MATH F632  Algebra II
3 Credits
Offered Spring Odd-numbered Years
Advanced topics which may be chosen from group theory, Galois theory, commutative or non-commutative algebra, algebraic geometry, homological algebra or other areas.
Prerequisites: MATH F631.
Lecture + Lab + Other: 3 + 0 + 0

MATH F641  Real Analysis
4 Credits
Offered Fall Odd-numbered Years
General theory of Lebesgue measure and Lebesgue integration on the real line. Convergence properties of the integral. Introduction to the general theory of measures and integration. Differentiation, the product measures and an introduction to LP spaces.
Prerequisites: MATH F401.
Lecture + Lab + Other: 4 + 0 + 0

MATH F645  Complex Analysis
4 Credits
Offered Spring Even-numbered Years
Prerequisites: MATH F641.
Lecture + Lab + Other: 4 + 0 + 0

MATH F651  Topology
4 Credits
Offered Spring Odd-numbered Years
Treatment of the fundamental topics of point-set topology. Separation axioms, product and quotient spaces, convergence via nets and filters, compactness and compactifications, paracompactness, metrization theorems, countability properties, and connectedness. Set theory as needed for examples and proof techniques.
Prerequisites: MATH F401 or MATH F404.
Lecture + Lab + Other: 4 + 0 + 0

MATH F658  Topics in Geometry
3 Credits
Offered Fall Even-numbered Years
Elective topics in geometry. Recent offerings include configurations of points and lines; topology and differential geometry of surfaces; polyhedra and polytopes.
Prerequisites: Linear algebra; geometry; undergraduate real analysis; undergraduate abstract algebra.
Lecture + Lab + Other: 3 + 0 + 0

MATH F660  Advanced Mathematical Modeling
3 Credits
Offered Spring Even-numbered Years
The mathematical formulation and analysis of problems arising in the physical, biological, or social sciences. The focus area of the course may vary, but emphasis will be given to modeling assumptions, derivation of model equations, methods of analysis, and interpretation of results for the particular applications. Examples include heat conduction problems, random walk processes, molecular evolution, perturbation theory. Students will develop a modeling project as part of the course requirements.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

MATH F661  Optimization
3 Credits
Offered Fall Even-numbered Years
Linear and nonlinear programming, simplex method, duality and dual simplex method, post-optimal analysis, constrained and unconstrained nonlinear programming, Kuhn-Tucker conditions. Applications to management, physical and life sciences. Computational work with the computer.
Prerequisites: Knowledge of calculus, linear algebra and computer programming.
Lecture + Lab + Other: 3 + 0 + 0

MATH F663  Graph Theory
3 Credits
Offered Fall Odd-numbered Years
A survey of modern techniques in graph theory; topics may include graphs and digraphs, trees, spanning trees, matchings, graph connectivity, graph coloring, planarity, cycles, and extremal problems.
Prerequisites: MATH F314; MATH F320.
Lecture + Lab + Other: 3 + 0 + 0

MATH F665  Topics in Graduate Mathematics
3 Credits
Offered As Demand Warrants
Elective courses in graduate mathematics offered by faculty on a rotating basis. Topics may include, but are not limited to, graph theory, glaciology modeling, general relativity, mathematical biology, Galois theory and numerical linear algebra. May be repeated for credit with permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ME F302   Dynamics of Machinery
4 Credits
Offered Fall
Kinematics and dynamics of mechanisms. Analysis of displacements, velocities, accelerations, and forces in linkages, cams and gear systems by analytical, experimental and computer methods. Design applications.  
Prerequisites: ES F301 (may be taken concurrently); ES F210.  
Lecture + Lab + Other: 3 + 3 + 0

ME F308   Instrumentation and Measurement
3 Credits
Offered Spring
Principles of measurement, instrumentation, Laplace transform, Fourier series, transfer function, steady-state response, calibration, and errors. Signal filtering and amplification, data acquisition, recording, and processing. Methods and devices for measuring strain, force, torque, displacement, velocity, acceleration, pressure, fluid flow properties, and temperature. Mechatronics, sensors, actuators, and controls.  
Prerequisites: ES F331.  
Lecture + Lab + Other: 2 + 3 + 0

ME F313   Mechanical Engineering Thermodynamics
3 Credits
Offered Fall
Investigation and design of power and refrigeration cycles (Rankine, Brayton, Otto, and Diesel), compressible flow (isentropic, shock waves, and flow in ducts with friction), and combustion and gas vapor mixtures.  
Prerequisites: ES F346.  
Lecture + Lab + Other: 3 + 0 + 0

ME F321   Industrial Processes
3 Credits
Offered Fall
Manufacturing processes used in modern industry. Primary and secondary manufacturing processes, casting, hot and cold forming, machining, welding and mass and efficient product design.  
Prerequisites: Mechanical Engineering major.  
Lecture + Lab + Other: 2 + 3 + 0

ME F334   Elements of Material Science/Engineering
3 Credits
Offered Spring
Properties of engineering materials. Crystal structure, defect structure, structure and properties, aspects of metal processing, heat treatment, joining, testing and failure analysis for engineering applications and design.  
Prerequisites: CHEM F105X and PHYS F212X.  
Lecture + Lab + Other: 2 + 3 + 0

ME F402   Advanced Mechanical System Design
3 Credits
Offered As Demand Warrants
Advanced analysis of two- and three-dimensional multi-body mechanical systems. Rigid body system formulation and deformable body system formulation. Application of CAE software for rigid body and large deformable body systems.  
Prerequisites: ME F302; ME F408.  
Stacked with ME F602.  
Lecture + Lab + Other: 3 + 0 + 0

ME F403   Machine Design
3 Credits
Offered Spring
Design and analysis of machines by analytical, experimental and computer methods. Identification of requirements and conceptual design of mechanical systems, detailed design of components, strength, life, reliability, and cost analysis.  
Prerequisites: ES F331.  
Lecture + Lab + Other: 3 + 0 + 0

ME F405   Computer Aided Design
3 Credits
Offered Every Other Fall
Introduction to principles of computer aided design and engineering. Applications of software and hardware in solid modeling, design analysis, motion analysis, rapid prototyping, and interface between computer aided design and computer aided manufacturing.  
Prerequisites: Senior standing.  
Lecture + Lab + Other: 1.5 + 4.5 + 0

ME F406   Computer Aided Manufacturing
3 Credits
Offered Every Other Spring
Introduction to computer aided manufacturing (CAM). This includes the principles of computer aided process planning (CAPP) and an introduction to computer numerical control (CNC) tools used in manufacturing. Emphasis will be on methodology with hands-on applications of computer software and specific machine tools.  
Prerequisites: ME F321; senior standing.  
Lecture + Lab + Other: 1.5 + 4.5 + 0

ME F408   Mechanical Vibrations
3 Credits
Offered Fall
Modeling of vibratory mechanical systems with single and multiple degrees of freedom. Study of free and forced vibrations with or without damping by lumped-parameter methods and finite element analysis. Vibrations of rotor systems and vibration stability.  
Prerequisites: ES F210, ES F301.  
Lecture + Lab + Other: 3 + 0 + 0

ME F409   Controls
3 Credits
Offered As Demand Warrants
Analysis and design of control systems. Block diagrams, transfer functions and frequency analysis. Closed loop systems and system stability. Industrial controllers and system compensation.  
Prerequisites: ES F301.  
Lecture + Lab + Other: 3 + 0 + 0
ME F414 HVAC Systems Optimization (a)
3 Credits
Offered As Demand Warrants
Design of thermal and heating, ventilation, and air-conditioning (HVAC) systems with emphasis on economic considerations and optimization. Concepts of thermodynamics, fluid mechanics and heat transfer will be integrated under a design framework. A semester long project is conducted to design a thermal system, perform system simulations, and to optimize the design based on economic and technical considerations.
Prerequisites: ES F341; ES F346.
Lecture + Lab + Other: 3 + 0 + 0

ME F415 Thermal Systems Laboratory (W)
3 Credits
Offered Spring
Testing and evaluation of components and energy systems such as pumps, fans, engines, heat exchangers, refrigerators and heating/power plants.
Prerequisites: ME F308 (may be taken concurrently); WRTG F111X; ES F341; ME F313; ME F441.
Lecture + Lab + Other: 1.5 + 4.5 + 0

ME F416 Design of Mechanical Equipment for the Petroleum Industry (a)
3 Credits
Offered Fall
Design, selection and operation of equipment used in production and processing of crude oil and gas. Instrumentation and control systems used with mechanical equipment.
Prerequisites: ES F341; ES F346.
Lecture + Lab + Other: 3 + 0 + 0

ME F440 Introduction to Microfluidics
3 Credits
Offered Spring Odd-numbered Years
Overview of basic concepts and principles of fluids at the micron scale; introduction to the design and fabrication of microfluidic devices.
Prerequisites: ES F341 (may be taken concurrently); PHYS F103X (for Math and non-Physics science major); PHYS F211X (for Engineering, Math and Physics major); junior standing.
Stacked with ME F640.
Lecture + Lab + Other: 3 + 0 + 0

ME F441 Heat and Mass Transfer
3 Credits
Offered Fall
Application of heat and mass transfer concepts to engineering problems including steady state and transient conduction, numerical analysis of heat transfer problems, laminar and turbulent free and forced convection, and black body and real surface radiation.
Prerequisites: ES F301; ES F341; ES F346.
Lecture + Lab + Other: 3 + 0 + 0

ME F443 Fluid Mechanics and Heat Transfer Characteristics of Nanofluids
3 Credits
Offered As Demand Warrants
Prerequisites: ES F341; ME F441; senior standing.
Stacked with ME F643.
Lecture + Lab + Other: 3 + 0 + 0

ME F450 Theory of Flight
3 Credits
Offered Fall Even-numbered Years
Airfoil theory in subsonic flow. Performance, stability and control of aircraft. Aircraft design.
Prerequisites: ES F341 (may be taken concurrently); ES F346.
Lecture + Lab + Other: 3 + 0 + 0

ME F451 Aerodynamics
3 Credits
Offered Spring Odd-numbered Years
Aerodynamics of non-lifting and lifting airfoils in incompressible irrotational flow, wings of finite span, the Navier-Stokes equations, boundary layers, numerical methods, supersonic and transonic flow past airfoils, rocket aerodynamics, rocket drag.
Prerequisites: ES F341 (may be taken concurrently); ES F346; ES F301; ES F346.
Lecture + Lab + Other: 3 + 0 + 0

ME F452 Introduction to Astrodynamics
3 Credits
Offered Fall Odd-numbered Years
Geometry of the solar system, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories. Elements of orbit determination.
Prerequisites: ES F208 or ES F210.
Corequisites: ES F301.
Lecture + Lab + Other: 3 + 0 + 0

ME F453 Propulsion Systems
3 Credits
Offered Spring Even-numbered Years
Prerequisites: ME F313 (may be taken concurrently); ES F341.
Lecture + Lab + Other: 3 + 0 + 0
ME F458 Energy and the Environment
3 Credits
Offered Fall Odd-Numbered Years
Overview of basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality.
Prerequisites: CHEM F106X; ES F346; MATH F252X; PHYS F211X.
Cross-listed with ENVE F458.
Stacked with ME F658; ENVE F658.
Lecture + Lab + Other: 3 + 0 + 0
ME F464 Corrosion Engineering
3 Credits
Offered Spring
Principles and forms of corrosion and factors that affect it. Methods of testing and measurement, control and prevention are examined.
Prerequisites: ME F334.
Lecture + Lab + Other: 3 + 0 + 0
ME F486 Senior Design
1 Credit
Offered Fall
The course is focused on pursuing the design of a real or simulated project which is selected jointly by students, project advisors and/or the instructor. Emphasis will be on the design of practical engineering systems and/or components which integrate engineering knowledge and skills that students have acquired. The principles of design process will be introduced in lecture. Each design team is to generate design concepts, select the best concept and work towards completing a design.
Prerequisites: ME F441 (may be taken concurrently); COJO F131X or COJO F141X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.
Lecture + Lab + Other: 1 + 0 + 0
ME F487 Design Project (O, W)
3 Credits
Offered Spring
A real or simulated engineering design project selected jointly by student and instructor. Emphasis on design of practical mechanical engineering systems and/or components which integrate students' engineering knowledge and skills.
Prerequisites: ME F486.
Lecture + Lab + Other: 3 + 0 + 0
ME F601 Finite Element Analysis in Engineering
3 Credits
Offered Every Third Semester
Formulation of the finite element method. Applications to problems of engineering in solid mechanics, fluid mechanics and heat transfer. Use and development of codes for computer solution of problems.
Prerequisites: Graduate standing in engineering; ES F201; MATH F302.
Lecture + Lab + Other: 3 + 0 + 0
ME F602 Advanced Mechanical System Design
3 Credits
Offered As Demand Warrants
Advanced analysis of two- and three-dimensional multi-body mechanical systems. Rigid body system formulation and deformable body system formulation. Application of CAE software for rigid body and large deformable body systems.
Prerequisites: ME F302; ME F408.
Stacked with ME F402.
Lecture + Lab + Other: 3 + 0 + 0
ME F608 Advanced Dynamics
3 Credits
Offered Every Third Semester
Kinematics and kinetics of rigid bodies, introduction to analytical mechanics, Lagrange’s equations and Hamiltonian mechanics. Applications to engineering problems.
Prerequisites: ES F210; MATH F302; graduate standing in engineering.
Lecture + Lab + Other: 3 + 0 + 0
ME F609 Advanced Vibrations
3 Credits
Offered Every Third Semester
Analysis of discrete and continuous vibrations via energy methods, free and forced response of linear systems, stability criteria, and introduction to random and nonlinear vibration. Applications to engineering problems.
Prerequisites: MATH F302; ME F408; graduate standing in engineering.
Lecture + Lab + Other: 3 + 0 + 0
ME F617 Power Analysis
3 Credits
Offered As Demand Warrants
Fundamentals of power generation including piping, pumps, fuels and combustion, steam generators, condensers, deaerators, evaporators, feedwater treatment and heating, regeneration, fuel handling, heat balance, equipment, economics, and plant layout.
Prerequisites: ME F313.
Lecture + Lab + Other: 3 + 0 + 0
ME F631 Advanced Mechanics of Materials
3 Credits
Offered Every Third Semester
Theories of elasticity and plasticity for small and large deformations. Applications to engineering problems.
Prerequisites: ES F331; graduate standing in engineering.
Lecture + Lab + Other: 3 + 0 + 0
ME F634 Advanced Materials Engineering
3 Credits
Offered Every Third Semester
Atomic bonding, crystal structure, crystal imperfections, phases and interfaces, microstructures, phase diagrams, phase transformation, transport and diffusion, metal deformation, fracture of materials, deterioration of materials, electronic and physical properties of materials.
Prerequisites: ME F334; MATH F302; graduate standing in engineering.
Lecture + Lab + Other: 3 + 0 + 0
ME F640 Introduction to Microfluidics
3 Credits
Offered Spring Odd-numbered Years
Overview of basic concepts and principles of fluids at the micron scale; introduction to the design and fabrication of microfluidic devices.
Prerequisites: ES F341 (may be taken concurrently); PHYS F103X (for Math and non-Physics science major); PHYS F211X (for Engineering, Math and Physics major); junior standing.
Stacked with ME F440.
Lecture + Lab + Other: 3 + 0 + 0
ME F641 Advanced Fluid Mechanics
3 Credits
Offered Every Third Semester
Introduction to viscous flows, laminar boundary layers, turbulent boundary layers, turbulent jets and wakes, applications to heat transfer and drag.
Prerequisites: ES F341; graduate standing in engineering.
Lecture + Lab + Other: 3 + 0 + 0
ME F642  Advanced Heat Transfer  
3 Credits  
Offered Every Third Semester  
Heat conduction in two and three dimensions under steady and transient conditions. Free and forced convection in internal and external flows. Radiation from black and gray surfaces and gas-filled enclosures. Both analytical and numerical methods are covered.  
Prerequisites: ME F441; graduate standing in engineering.  
Lecture + Lab + Other: 3 + 0 + 0  

ME F643  Fluid Mechanics and Heat Transfer Characteristics of Nanofluids  
3 Credits  
Offered As Demand Warrants  
Prerequisites: ES F341; ME F441; graduate standing.  
Stacked with ME F443.  
Lecture + Lab + Other: 3 + 0 + 0  

ME F656  Aerospace Systems Engineering  
3 Credits  
Offered Fall Odd-numbered Years  
A multidisciplinary team of students will perform a preliminary design study of a major aerospace system. Design considerations will include requirements for project management, aerospace vehicle design, power, attitude control, thermal control, communications, computer control and data handling. The students will present their final design in a written report and a public seminar.  
Prerequisites: Graduate standing.  
Cross-listed with EE F656.  
Lecture + Lab + Other: 3 + 0 + 0  

ME F658  Energy and the Environment  
3 Credits  
Offered Fall Odd-numbered Years  
Basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality.  
Recommended: CHEM F106X; ES F346; MATH F252X; PHYS F211X; graduate standing.  
Cross-listed with ENVE F658.  
Stacked with ME F458; ENVE F458.  
Lecture + Lab + Other: 3 + 0 + 0  

ME F685  Arctic Heat and Mass Transfer (a)  
3 Credits  
Offered As Demand Warrants  
An introduction to the principles of heat and mass transfer with special emphasis on application to problems encountered in the Arctic such as ice and frost formation, permafrost, condensation and heat loss in structures.  
Prerequisites: graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ME F687  Arctic Materials Engineering (a)  
3 Credits  
Offered As Demand Warrants  
A study of engineering material performance at low temperatures.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

ME F698  Non-thesis Research/Project  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

ME F699  Thesis  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

Mechanics-Diesel/Heavy Equipment (MECN)  

MECN F103  Starting and Charging Systems  
3 Credits  
Starting and charging systems, diagnostic methods and specifications that are standard in the industry. Volt, amperage and load tests on a battery.  
Lecture + Lab + Other: 1 + 4 + 0  

MECN F104  Mobile Equipment Maintenance  
1 Credit  
Technical, financial and legal aspects of mobile equipment maintenance. Students will work in groups to perform a maintenance operation and create maintenance records on a variety of vehicle types.  
Lecture + Lab + Other: 0.5 + 1 + 0  

MECN F112  Basic Auto Maintenance  
1 Credit  
Covers basic automobile system functions, owner maintenance of electrical, cooling and fuel systems, auto lubricants and fluids, tires and wheels, tune-ups, and cold weather maintenance and operation. For the person without mechanical experience.  
Lecture + Lab + Other: 1 + 0 + 0  

MECN F154  Diesel Fuel Injection  
2 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

MECN F159  Manual Transmissions and Clutches  
2 Credits  
Two major areas of automotive maintenance and repair: inspection and replacement of common clutch types; and maintenance, inspection and overhaul of automotive manual transmissions.  
Lecture + Lab + Other: 1 + 2 + 0  

MECN F201  Advanced Automobile Equipment Electronics  
2 Credits  
Troubleshooting and repairing a wide range of electronic systems found in both light and heavy equipment including, but not limited to, load moment limiting, motor speed control, electronic control of hydraulic systems and electronic governors for power generation.  
Lecture + Lab + Other: 1 + 2 + 0  

MECN F202  Principles of Electric Drive Vehicles  
2 Credits  
In-depth study of batteries: design, construction, testing and charging, currents and maintenance. Knowledge applied to DC motors, electronic controls and electronic traction motor controls. The in-shop training discusses environmental impacts of electric drive vehicles.  
Lecture + Lab + Other: 2 + 0 + 0
Medical Assisting (MA)

MA F100  Medical Terminology
3 Credits
Study of medical terminology, including analysis and origin of word roots, prefixes and suffixes. Understanding the word components, students will be able to build, spell and define medical words. Content will be presented by body systems focusing on anatomy, diagnostic, laboratory and medical specialties. Includes use of medical dictionary, word pronunciation and abbreviations. Designed for health care professionals.
Cross-listed with HLTH F100.
Lecture + Lab + Other: 3 + 0 + 0

MA F114  Fundamentals of Anatomy and Physiology
4 Credits
Provides a basic understanding of human anatomy and physiology. Recommended for individuals interested in health careers or students desiring an introduction to anatomy and physiology prior to taking in-depth course work in this field. Students should take HLTH F114 if they took HLTH F110, and MA F114 if they took MA F100.
Recommended: HLTH F100 or MA F100; high school biology and chemistry.
Cross-listed with HLTH F114.
Lecture + Lab + Other: 4 + 0 + 0

MECN F203  Basic Power Generations
3 Credits
Portables and stationary electric power generators and the relationship of magnetism, AC/DC currents, motors, generators, transformers and electrical distribution.
Recommended: AUTO F110.
Lecture + Lab + Other: 2 + 2 + 0

MECN F204  Basic Alternating Current Electrician Skills
2 Credits
Basic residential and commercial electrician skills; current theory and applications; electrical measurement and circuitry.
Lecture + Lab + Other: 1 + 2 + 0

MECN F205  Uninterruptible Power Supplies
1 Credit
Residential and commercial power supplies; troubleshooting batteries; electronic components; reading UPS schematics.
Lecture + Lab + Other: 0.5 + 1 + 0

MECN F206  Emergency Backup Power Generation
1 Credit
Language and fundamentals of electricity; circuitry; conductor types and sizes; writing methods; system requirements of power generation.
Lecture + Lab + Other: 0.5 + 1 + 0

MECN F207  Power Generation Governors
2 Credits
Mechanically and electrically controlled engines with emphasis on what is a governor and what is its function in power generation will be covered in the hands-on diagnostic training.
Lecture + Lab + Other: 1 + 2 + 0

MECN F208  Alternative Fuels
2 Credits
History of fuels with emphasis on the known alternative fuels: natural gas, methanol, ethanol and propane. A research project is required.
Lecture + Lab + Other: 1 + 2 + 0

MECN F210  Hydraulics
3 Credits
Offered Spring
Theory of fluid power and the components that make up a hydraulic system found on heavy equipment. Identification and description of hydraulic cylinders, motors, directional valves commonly found on heavy equipment. Includes testing of equipment and performing hydraulic pressure and flow tests.
Prerequisites: DSLT F101; DSLT F103; DSLT F105.
Lecture + Lab + Other: 1 + 4 + 0

Medical Assisting (MA)

MA F100  Medical Terminology
3 Credits
Study of medical terminology, including analysis and origin of word roots, prefixes and suffixes. Understanding the word components, students will be able to build, spell and define medical words. Content will be presented by body systems focusing on anatomy, diagnostic, laboratory and medical specialties. Includes use of medical dictionary, word pronunciation and abbreviations. Designed for health care professionals.
Cross-listed with HLTH F100.
Lecture + Lab + Other: 3 + 0 + 0
MA F247  Introduction to Pharmacology
2 Credits
Introduction to the use of therapeutic medications in medical settings. Includes classifications of drugs, clinical use and adverse effects of the 50 most commonly prescribed medications.
Prerequisites: HLTH F100; HLTH F114 or BIOL F100X.
Lecture + Lab + Other: 2 + 0 + 0

MA F261  Medical/Dental Office Reception Practicum
2 Credits
Offered As Demand Warrants
Provides the student with 80 hours of practicum work in a medical or dental office, with additional time required for meeting with the campus practicum coordinator. Students will be expected to perform any and all duties of a receptionist in a medical/dental care setting. Satisfies practicum experience requirement for medical/dental reception certificate. May be used to partially satisfy practicum experience requirement of medical assistant A.A.S. degree certificate. Students part of the medical assisting program should take the MA F261 section of this course.
Prerequisites: HLTH F122; enrollment by special permission only.
Recommended: Students taking MA F261 should have passed MA F144, and students taking HLTH F261 should have passed HLTH F132 and HLTH F234.
Cross-listed with HLTH F261.
Lecture + Lab + Other: 0 + 0 + 6

MA F267  Medical Assisting Practicum Completion
2 Credits
Provides 100 hours of practicum work in the back office of a medical clinic for medical assisting students. Additional contact time required for meeting with the campus practicum coordinator. MA F267 combined with HLTH F261 provides experience equivalent to that in MA F268 and satisfies the practicum requirement for the medical assistant certificate and A.A.S.
Prerequisites: HLTH F122; HLTH F132; HLTH F234; MA F142; MA F244; enrollment by special permission only.
Lecture + Lab + Other: 0 + 0 + 8

MA F268  Medical Assisting Practicum
4 Credits
Provides the student with 180 hours of hands-on practicum work in an outpatient health, with additional time required for meeting with the campus practicum coordinator. Students will not receive compensation/payment, monetary or otherwise for the practicum experience. This is the last course in the medical assistant A.A.S. degree and certificate program for students who have not taken any specialized certificates during their course of study. During their practicum, students will be expected to perform procedures learned throughout the medical assisting curriculum. The combination of HLTH F261 and MA F267 may be substituted for MA F268 to satisfy the degree requirements.
Prerequisites: HLTH F122, HLTH F132, MA F142, HLTH F234, MA F244; enrollment by special permission only.
Lecture + Lab + Other: 0 + 0 + 12

Military Science (MILS)

MILS F101  Foundations of Officership
2 Credits
Issues and competencies central to a commissioned officer’s responsibilities. Presents a framework for understanding officership leadership and Army values. Addresses life skills including fitness and time management. Designed to encourage insight into the Army as a profession and the officer’s role within the Army.
Lecture + Lab + Other: 1 + 2 + 0

MILS F102  Basic Leadership
2 Credits
Continuation of MILS F101. Focus on communications, leadership and problem solving. Life skills lessons include: problem solving, goal setting, interpersonal communication, and assertiveness. Lessons yield immediately useful skills. Provides accurate information about life in the Army, including the organization of the Army, employment benefits and work experiences of junior officers.
Lecture + Lab + Other: 1 + 2 + 0

MILS F201  Individual Leadership Studies (s)
3 Credits
Communication and leadership theory and application. Focus on critical life skills. Emphasis on relevance of life skills to future success in the Army. Includes a major leadership and problem solving case study which draws on virtually all of the instruction in MILS F101 and MILS F102.
Lecture + Lab + Other: 2 + 2 + 0

MILS F202  Leadership and Teamwork
3 Credits
Focus on officership providing an extensive examination of the unique purpose, roles and obligations of commissioned officers. Includes a detailed look at the origin of our institutional values and their practical application in decision-making and leadership. Core focus is a capstone case study in officership that traces the Army's successes and failures as it evolved from the Vietnam War to present, placing previous lessons on leadership and officership in a real-world context that directly affects the future of cadets. Draws the various components of values, communications, decision-making, and leadership together to focus on a career as a commissioned officer.
Lecture + Lab + Other: 2 + 2 + 0

MILS F250  Leaders Training Course
3 Credits
A four-week camp in basic military skills and leadership experience in preparation for entrance into the advanced course. For students who did not take the basic course.
Prerequisites: At least two years of schooling remaining upon completion of camp; admission by arrangement with professor of military science.
Lecture + Lab + Other: 3 + 0 + 0
MILS F301 Leadership and Problem Solving (W)
4 Credits
Challenges cadets to study, practice and evaluate adaptive leadership skills as they are presented with the demands of preparing for the ROTC Leadership Development Assessment Course (LDAC). Challenging scenarios related to small unit tactical operations are used to develop self awareness and critical thinking skills. Cadets receive systematic and specific feedback on their leadership abilities. Cadets at the MSL III level begin to analyze and evaluate their own leadership values, attributes, skills and actions. Primary attention is given to preparation for LDAC and the development of leadership abilities.
Prerequisites: MILS F100-F300-level students. 
Lecture + Lab + Other: 3 + 2 + 0

MILS F302 Leadership and Ethics (O)
4 Credits
Offered Spring
Interdisciplinary study of effective leadership techniques and preparation for attendance in MILS F350. Laboratory sessions offer practical application of concepts taught in classroom sessions.
Prerequisites: MILS F301; MILS F302; must be enrolled as an advanced course cadet; and have the recommendation of the Department Head.
Lecture + Lab + Other: 3 + 0 + 0

MILS F350 Leadership Development Assessment Course
3 Credits
Five-week course structured to assess and develop the leadership capabilities of the cadet by using a variety of situations in a military environment.
Prerequisites: MILS F301; MILS F302; must be enrolled as an advanced course cadet; and have the recommendation of the Department Head.
Lecture + Lab + Other: 3 + 0 + 0

MILS F351 Cadet Troop Leadership Training
2 Credits
Three- to five-week full-time leadership training and development, serving in leadership positions with the active Army. Application of leadership and management principles in real life junior officer situations/positions.
Prerequisites: MILS F101; MILS F350; must be enrolled as an advanced course cadet.
Lecture + Lab + Other: 0 + 0 + 0

MILS F401 Developmental Leadership (s)
4 Credits
Develops student proficiency in planning, executing and assessing complex operations, functioning as a member of a staff and providing leadership-performance feedback to subordinates. Students are given situational opportunities to assess risk, make ethical decisions and provide coaching to fellow ROTC students. MSL IV cadets are measured by their ability both to give and receive systematic and specific feedback on leadership abilities. Cadets at the MSL IV level analyze and evaluate the leadership values, attributes, skills and actions of MSL III cadets while simultaneously considering their own leadership skills. Attention is given to preparation for BOLC II and the development of leadership abilities.
Prerequisites: Senior standing in MILS and permission of instructor.
Lecture + Lab + Other: 3 + 2 + 0

MILS F402 Officership
4 Credits
Continuation of MILS F401. Includes study of military ethics and law. Student role in laboratory sessions is to plan instruction and assess performance of MILS F100-F300-level students.
Prerequisites: Senior standing in MILS and permission of instructor.
Lecture + Lab + Other: 4 + 0 + 0

MILS F442 History of the American Military (s)
3 Credits
Offered Fall
The military’s place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves.
Prerequisites: Sophomore standing.
Cross-listed with HIST F442.
Lecture + Lab + Other: 3 + 0 + 0

Mineral Preparation Engineering (MPR)

MPR F601 Froth Flotation
3 Credits
Offered Fall
Theory and application of bulk and differential froth flotation to metallic minerals, nonmetallic minerals and coal.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 2 + 3 + 0

MPR F606 Plant Design
3 Credits
Offered Fall Odd-numbered Years
Selection and design of equipment for the operation of mineral and coal beneficiation plants for specific custom and milling problems.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 1 + 6 + 0

MPR F611 Hydrometallurgy
3 Credits
Offered Fall
Study of the theoretical and engineering aspects of the processes to recover metals from different types of ores and/or scraps, in which aqueous solutions play the predominate role.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F612 Solution Concentration and Purification
3 Credits
The physical chemistry of reaction encountered in solution concentration and purification processes. The types of reaction discussed are cementation, solvent extraction, ion exchange and carbon absorption which are studied in terms of solution chemistry, reaction kinetics and mass transfer effects.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F613 Waste Problems and Treatments
3 Credits
Waste problems and treatments encountered in mineral processing and metallurgical industries. Includes waste problems and treatments in gold, copper, zinc, iron and steelmaking, aluminum and non-metal industries as well as in electronic and electroplating industries.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F612 Solution Concentration and Purification
3 Credits
The physical chemistry of reaction encountered in solution concentration and purification processes. The types of reaction discussed are cementation, solvent extraction, ion exchange and carbon absorption which are studied in terms of solution chemistry, reaction kinetics and mass transfer effects.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F613 Waste Problems and Treatments
3 Credits
Waste problems and treatments encountered in mineral processing and metallurgical industries. Includes waste problems and treatments in gold, copper, zinc, iron and steelmaking, aluminum and non-metal industries as well as in electronic and electroplating industries.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

Mineral Preparation Engineering (MPR)

MPR F601 Froth Flotation
3 Credits
Offered Fall
Theory and application of bulk and differential froth flotation to metallic minerals, nonmetallic minerals and coal.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 2 + 3 + 0

MPR F606 Plant Design
3 Credits
Offered Fall Odd-numbered Years
Selection and design of equipment for the operation of mineral and coal beneficiation plants for specific custom and milling problems.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 1 + 6 + 0

MPR F611 Hydrometallurgy
3 Credits
Offered Fall
Study of the theoretical and engineering aspects of the processes to recover metals from different types of ores and/or scraps, in which aqueous solutions play the predominate role.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F612 Solution Concentration and Purification
3 Credits
The physical chemistry of reaction encountered in solution concentration and purification processes. The types of reaction discussed are cementation, solvent extraction, ion exchange and carbon absorption which are studied in terms of solution chemistry, reaction kinetics and mass transfer effects.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F613 Waste Problems and Treatments
3 Credits
Waste problems and treatments encountered in mineral processing and metallurgical industries. Includes waste problems and treatments in gold, copper, zinc, iron and steelmaking, aluminum and non-metal industries as well as in electronic and electroplating industries.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

MPR F601 Froth Flotation
3 Credits
Offered Fall
Theory and application of bulk and differential froth flotation to metallic minerals, nonmetallic minerals and coal.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 2 + 3 + 0

MPR F606 Plant Design
3 Credits
Offered Fall Odd-numbered Years
Selection and design of equipment for the operation of mineral and coal beneficiation plants for specific custom and milling problems.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 1 + 6 + 0

MPR F611 Hydrometallurgy
3 Credits
Offered Fall
Study of the theoretical and engineering aspects of the processes to recover metals from different types of ores and/or scraps, in which aqueous solutions play the predominate role.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F612 Solution Concentration and Purification
3 Credits
The physical chemistry of reaction encountered in solution concentration and purification processes. The types of reaction discussed are cementation, solvent extraction, ion exchange and carbon absorption which are studied in terms of solution chemistry, reaction kinetics and mass transfer effects.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F613 Waste Problems and Treatments
3 Credits
Waste problems and treatments encountered in mineral processing and metallurgical industries. Includes waste problems and treatments in gold, copper, zinc, iron and steelmaking, aluminum and non-metal industries as well as in electronic and electroplating industries.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

MPR F601 Froth Flotation
3 Credits
Offered Fall
Theory and application of bulk and differential froth flotation to metallic minerals, nonmetallic minerals and coal.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 2 + 3 + 0

MPR F606 Plant Design
3 Credits
Offered Fall Odd-numbered Years
Selection and design of equipment for the operation of mineral and coal beneficiation plants for specific custom and milling problems.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 1 + 6 + 0

MPR F611 Hydrometallurgy
3 Credits
Offered Fall
Study of the theoretical and engineering aspects of the processes to recover metals from different types of ores and/or scraps, in which aqueous solutions play the predominate role.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F612 Solution Concentration and Purification
3 Credits
The physical chemistry of reaction encountered in solution concentration and purification processes. The types of reaction discussed are cementation, solvent extraction, ion exchange and carbon absorption which are studied in terms of solution chemistry, reaction kinetics and mass transfer effects.
Prerequisites: MATH F253X; CHEM F331.
Lecture + Lab + Other: 3 + 0 + 0

MPR F613 Waste Problems and Treatments
3 Credits
Waste problems and treatments encountered in mineral processing and metallurgical industries. Includes waste problems and treatments in gold, copper, zinc, iron and steelmaking, aluminum and non-metal industries as well as in electronic and electroplating industries.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0
MPR F684  Mineral Preparation Research
3 Credits
Basic research and its needs in the field of mineral beneficiation, including magnetic susceptibility, dielectric constants and electrical conductivity of minerals; chemical theory and mechanism of bubble contact in flotation; and the effect of ultrasonic vibration in unit processes.
Prerequisite: Admission by arrangement.
Lecture + Lab + Other: 1 + 6 + 0

MPR F688  Graduate Seminar I
1 Credit
Preparation and presentation of research outlines by graduate students and participation in regularly organized mineral engineering department seminars.
Prerequisites: Admission to graduate program.
Cross-listed with MPR F688.
Lecture + Lab + Other: 1 + 0 + 0

AMIT F101  Introduction to Mining
3 Credits
Offered As Demand Warrants
Fundamentals of surface and underground mining, economic planning, proper exploration designs, environmental concerns and safety factors.
Lecture + Lab + Other: 3 + 0 + 0

AMIT F129  Surface Mine Safety
1 Credit
Offered As Demand Warrants
Rights of miners, introduction to the work environment, ground control, hazard recognition, first aid and explosive safety. Course fulfills the Mine Safety Health Administration requirements for surface miner training. Students are awarded MSHA certificate upon completion of the class.
Lecture + Lab + Other: 1 + 0 + 0

AMIT F130  Surface Mining Operations
3 Credits
Offered As Demand Warrants
Safe operations of a surface mine. Placer gold, sand and gravel, coal, and open pit metal mines.
Lecture + Lab + Other: 3 + 0 + 0

AMIT F135  Introduction to Mining Systems and Equipment
4 Credits
Offered as Demand Warrants
An overview to the field of mining beneficiation and comminution, systems and equipment used for the mining and mineral processing industry. Fundamentals of basic separation and mineral beneficiation of surface and underground mining, economic planning, environmental concerns, safety and terminology will be explored.
Lecture + Lab + Other: 3 + 3 + 0

AMIT F145  Introduction to Mineral Beneficiation
3 Credits
Offered As Demand Warrants
Provides an overview or introduction into the field of mineral beneficiation and comminution, systems and equipment used for the mineral processing industry. Fundamentals of basic separation and mineral beneficiation, environmental concerns, safety and terminology will be explored.
Lecture + Lab + Other: 3 + 0 + 0

Mining Engineering (MIN)

MIN F101  Minerals, Man and the Environment
3 Credits
A general survey of the impact of the mineral industries on man's economic, political and environmental systems.
Lecture + Lab + Other: 3 + 0 + 0

MIN F103  Introduction to Mining Engineering
1 Credit
Concepts and methods utilized in mining engineering and mining unit operations.
Lecture + Lab + Other: 1 + 0 + 0

MIN F202  Mine Surveying
3 Credits
Offered Fall
Surveying principles for surface and underground control of mining properties. Field and office procedures for preparation of maps and engineering data.
Prerequisites: MATH F151X, MATH F152X.
Lecture + Lab + Other: 2 + 3 + 0

MIN F225  Quantitative Methods in Mining Engineering
2 Credits
Offered Fall
Introduction to ore reserve estimation, classical estimation methods and techniques, error in estimations and pitfalls, introduction to classical statistics, introduction to geostatistics, ordinary kriging, block kriging, modeling the sample variogram, co-kriging and global estimation.
Prerequisites: MATH F251X.
Lecture + Lab + Other: 2 + 3 + 0

MIN F226  Mine Development
2 Credits
Offered Spring
Review of pre-mining activities. Access to mining property, haul road location and design. Access to ore body; shaft, slope and ramp locations; shape, sizing and development. Development of access in frozen ground environments. Layout of development mains, cross-cuts, raises and winzes for ventilation, transport and optimum extraction of ore body. Level intervals, size and location of ore passes, design and optimization.
Prerequisites: MIN F103; MIN F225.
Recommended: MATH F251X.
Lecture + Lab + Other: 2 + 0 + 0
MIN F301  Mine Plant Design  3 Credits
Quantitative study and design of various systems and equipment used in haulage, hoisting, drainage, pumping and power (compressed air and electricity). Importance of the natural conditions and production level in the equipment selection procedure emphasized.
Prerequisites: ES F208 and ES F307.
Recommended: ES F341.
Lecture + Lab + Other: 3 + 0 + 0

MIN F302  Underground Mine Environmental Engineering  3 Credits
Analysis of underground mine ventilation systems, ventilation planning, design and engineering control, mine ventilation network.
Prerequisites: MIN F103; MIN F226; ES F341.
Lecture + Lab + Other: 2 + 3 + 0

MIN F313  Introduction to Mineral Preparation  3 Credits
Offered Fall Odd-numbered Years
Elementary theory and principles of unit processes of liberation, concentration and solid-fluid separation as applied to mineral beneficiation.
Prerequisites: Junior standing.
Lecture + Lab + Other: 2 + 3 + 0

MIN F370  Rock Mechanics  3 Credits
Physical and mechanical properties of rock; rock mass classification systems; stress distribution in the vicinity of mining openings, design criteria and support for structures in rock mass, instrumentation and monitoring of opening's stability as well as strata control and surface subsidence.
Corequisites: ES F331.
Lecture + Lab + Other: 2 + 3 + 0

MIN F380  Computer Aided Orebody Modeling  1 Credit
Offered Fall
Develops a orebody model from drillhole data in a computer aided design environment. The data is converted into a drillhole database, following which, a 3D visual model is developed. Basic tools covered include concepts of computer aided design, database error checking and triangulation.
Prerequisites: GEOS F332.
Lecture + Lab + Other: 2 + 3 + 0

MIN F401  Mine Site Field Trips  1 Credit
Field trips to active surface and underground mines to gain perceptual knowledge of modern mining systems by observation. Includes a systematic summarization and analysis of the mine after each visit to gain an in-depth understanding of mining engineering principles.
Prerequisites: MIN F202; MIN F301; MIN F302; MIN F370.
Lecture + Lab + Other: 0.5 + 3 + 0
MIN F454 Underground Mining Methods
3 Credits
Underground mining methods for coal and non-coal deposits. Includes design parameters, selection of mining methods, mine planning process, auxiliary operations and various underground mining methods.
Prerequisites: MIN F301; MIN F302; MIN F370.
Lecture + Lab + Other: 3 + 0 + 0

MIN F482 Computer-aided Mine Design: VULCAN
3 Credits
Familiarization with VULCAN mine design software to store, manage, model and display exploration data. Estimate volume, tonnage and quality of reserve, design declines and development drives in underground and surface coal and hardrock mines, design underground and surface coal mine plans and design of underground stopes, perform underground and surface grade control.
Prerequisites: Junior, senior or graduate standing in Mining Engineering, Geological Engineering.
Stacked with MIN F682.
Lecture + Lab + Other: 2 + 3 + 0

MIN F484 Surface Mining Methods
2 Credits
Offered Spring Even-numbered Years
Modern methods of surface mine design. Strip and open pit optimization techniques. Production planning and scheduling. Use of mine design software.
Prerequisites: MIN F225; MIN F226; Junior or senior standing in mining engineering.
Lecture + Lab + Other: 2 + 0 + 0

MIN F485 Mining Engineering Exit Interview
0 Credit
An Exit interview will be conducted to obtain feedback on the program.
Prerequisites: Senior standing in mining engineering.
Corequisites: MIN F490.
Lecture + Lab + Other: 0 + 0 + 0

MIN F489 Mining Design Project I
1 Credit
Offered Fall
This course is a pre-cursor to MIN F490. The student is expected to meet with the instructor to finalize the senior design project topic, lay out a project plan, gather data and prepare as necessary for the successful execution of the project in MIN F490.
Prerequisites: WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; MIN F301; MIN F302; MIN F370.
Lecture + Lab + Other: 1 + 0 + 0

MIN F490 Mining Design Project II (W)
2 Credits
Offered Spring
Design of mine layout including extraction and beneficiation, and economic evaluation of a mining project. A comprehensive written report of the design and analysis is required.
Prerequisites: WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; MIN F301; MIN F302; MIN F370; MIN F454; MIN F489.
Lecture + Lab + Other: 1 + 4 + 0

MIN F501 Application of Artificial Neural Networks
3 Credits
Basic neural network architectures, including rules, training methods and practical applications. Training and application issues typical of earth sciences problems. Some topics require mathematical analysis. Genetic algorithms and use of network ensembles will be briefly presented.
Prerequisites: Graduate standing in engineering, programming ability; knowledge of MATLAB, a plus.
Recommended: MATH F253X, MATH F314; MIN F408; MIN F635.
Lecture + Lab + Other: 3 + 0 + 0

MIN F621 Advanced Mineral Economics
3 Credits
Introduction to options valuation of mineral projects; uncertainty and risk in mineral valuations; stochastic price models; dynamic programming and investment analysis; real options techniques.
Prerequisites: Admission by arrangement.
Lecture + Lab + Other: 3 + 0 + 0

MIN F631 Research Methods in Mineral Engineering
4 Credits
Research methods including problem definition and statement, designing experiments, collecting and interpreting data. Methods of theoretical and experimental analysis will be reviewed and examples given.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 3 + 0

MIN F635 Advanced Geostatistical Applications
3 Credits
Offered Spring
Introduction to the theory and application of geostatistics. Review of classical statistics, continuous and discrete distributions, hypothesis testing and global estimation. Presentation of fundamental geostatistical concepts including: variogram, estimation variance, block variance, kriging, geostatistical simulation. Emphasis on the practical application of geostatistical techniques.
Prerequisites: MIN F490; graduate standing.
Cross-listed with GE F635.
Lecture + Lab + Other: 2 + 3 + 0

MIN F637 Mine Systems Simulation
3 Credits
Application of computer simulation to the analysis of static and dynamic mine systems and the development of useful programs for mine operators. Design of simulation experiments in mining engineering.
Prerequisites: MIN F490; graduate standing.
Lecture + Lab + Other: 2 + 3 + 0

MIN F652 Numerical Methods in Mine Ventilation
3 Credits
Differencing schemes for the partial differential equations of flow in mine networks, typical boundary conditions for mine ventilation systems, computer-aided solution techniques. Application to flow of fluids through porous media is covered.
Prerequisites: MIN F302; graduate standing.
Lecture + Lab + Other: 2 + 3 + 0

MIN F673 Advanced Rock Mechanics
3 Credits
The study of theoretical and experimental methods in rock mechanics. State of stress and potential failure zone around two- and three-dimensional structures in rock based on theoretical, numerical and experimental techniques and failure criteria are presented.
Prerequisites: MIN F370; graduate standing.
Lecture + Lab + Other: 2 + 3 + 0
MIN F674  Advanced Ground Control
3 Credits
A study of current rock mechanic problems related to advances in mining and construction technologies. Particular emphasis on the importance of rock and frozen ground properties and stress evaluation in designing and monitoring stability of structures for gas, oil and radioactive materials storage, geothermal energy recovery, solution mining, and those exposed to rock outbursts and earthquakes. Rock and frozen ground properties related to other dynamic loading conditions, such as in blasting, are also discussed.
Prerequisite: MIN F370.
Lecture + Lab + Other: 0 + 0 + 0

MIN F682  Computer-aided Mine Design: VULCAN
3 Credits
Offered Fall
Familiarization with VULCAN mine design software to store, manage, model and display exploration data. Estimate volume, tonnage and quality of reserve, design declines and development drives in underground and surface coal and hardrock mines, design underground and surface coal mine plans and design of underground stopes, perform underground and surface grade control.
Prerequisite: Graduate standing in Mining Engineering or Geological Engineering.
Stacked with MIN F482.
Lecture + Lab + Other: 2 + 3 + 0

MIN F688  Graduate Seminar I
1 Credit
Preparation and presentation of research outlines by graduate students and participation in regularly organized mineral engineering department seminars.
Prerequisite: Admission to graduate program.
Cross-listed with MPR F688.
Lecture + Lab + Other: 1 + 0 + 0

MIN F698  Non-thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

MIN F699  Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

Museum Research Apprenticeship Program (MRAP)

MRAP F288  Museum Research Apprentice I
1-2 Credits
Offered Fall and Spring
Provides opportunities for undergraduate student research or scholarship in museum-based subjects not available in typical undergraduate courses, building upon prior experience. Students are required to perform research tasks associated with specimens, objects, and associated data and to turn in a final report. Opportunities range across several museum-based disciplines (archaeology, botany, earth science, entomology, ethnology and history, film, fine art, ichthyology, mammalogy, informal science education, and ornithology). Course may be repeated. Student must contact potential mentor before enrolling to determine whether matching opportunities exist.
Prerequisite: Instructor permission.
Lecture + Lab + Other: 1 + 0 + 3-6

MRAP F488  Museum Research Apprentice II
1-2 Credits
Offered Fall and Spring
Provides opportunities for advanced undergraduate student research or scholarship in museum-based subjects not available in typical undergraduate courses, building upon prior experience. Students are required to perform tasks associated with specimens, objects, and associated data and to turn in a final report. Opportunities range across several museum-based disciplines (archaeology, botany, earth science, entomology, ethnology and history, film, fine art, ichthyology, mammalogy, informal science education, and ornithology). Course repeatable to a maximum of 12 credits. Student must contact potential mentor before enrolling to determine whether experience is sufficient and matching opportunities exist.
Prerequisite: Permission of instructor.
Lecture + Lab + Other: 1 + 0 + 3-6

Museum Studies (MSM)

MSM F211  Fundamentals of Museum Studies I
3 Credits
Origin, structure and development of museums, types of museums and their functions, professional directions and ethics. Collection management systems and techniques, role and ethics of museum conservation.
Prerequisite: Sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

MSM F212  Fundamentals of Museum Studies II
3 Credits
Museum education, including educational goals and objectives, the museum visitor, program development and publicity. A comprehensive survey of exhibits theory and practices, museum management, administrative frameworks, legal considerations and financial management.
Prerequisites: MSM F211.
Lecture + Lab + Other: 3 + 0 + 0

MSM F311  Museum Administration
3 Credits
Administrative philosophy and procedures in public and private, large and small museums; the types and sources of support and interactions with local and national supportive groups.
Prerequisites: MSM F211 and MSM F212.
Lecture + Lab + Other: 3 + 0 + 0

MSM F312  Museum Collection Management
3 Credits
Basic curatorial techniques and problems. Field collecting and other forms of acquisition through accessioning, cataloging, preparation, exhibit, teaching and research.
Prerequisites: MSM F211 and MSM F212.
Lecture + Lab + Other: 3 + 0 + 0

MSM F487  Museum Practicum
3 Credits
Supervised participation in one or more phases of museum operations or disciplines.
Prerequisites: MSM F211 and MSM F212.
Lecture + Lab + Other: 0 + 0 + 9
Music (MUS)

MUS F101  University Chorus  (h)  1 Credit
A chorus serving both beginning and skilled singers presenting concerts each semester of popular and classic choral literature.
Lecture + Lab + Other: 0 + 3 + 0

MUS F103X  Music Fundamentals  (h)  3 Credits
An introductory study of the language of music. Includes basic notation, melodic and rhythmic writing, scales, bass and treble clefs, and basic harmony.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 0 + 3 + 0

MUS F105  UAF Steel Drum Ensemble  (h)  1 Credit
Performance class designed to prepare performances of soca, calypso, and reggae music from the Caribbean Islands, as well as Latin style music. Ensemble includes percussion and a few other supporting instruments. May be repeated for credit.
Prerequisites: Ability to sight-read music.
Recommended: MUS F103X.
Lecture + Lab + Other: 0 + 3 + 0

MUS F117  Northern Lights String Orchestra  (h)  1 Credit
Explore literature written primarily for string orchestra. Periodically, winds and percussion will join for performances of literature requiring additional instruments. Works studied vary from semester to semester depending on the instrumentation of those enrolled in the course. May be repeated for credit.
Prerequisites: Previous instruction on a bowed string instrument.
Lecture + Lab + Other: 0 + 3 + 0

MUS F122  History of Popular Music  (h)  3 Credits
The development of American popular music from ragtime to rock to rap: its styles, artists, cultural origins, social symbolism and influence worldwide. How popular music in each decade reflects the social ethos of the times, expresses youth attitudes and mirrors lifestyle. An examination of music's function in society.
Lecture + Lab + Other: 0 + 3 + 0

MUS F124  Music in World Cultures  (h)  3 Credits
A survey of traditional and folk music around the world, with an emphasis on Oriental and African music. Examines different uses of music in various societies, and includes demonstration of ethnic musical instruments.
Lecture + Lab + Other: 0 + 3 + 0

MUS F125X  Enjoying Jazz  (h)  3 Credits
An introduction to jazz music, including its history, performance and various styles. This is a listening intensive course that offers a deeper appreciation and greater awareness of the many artists, collaborations and trends contributing to the development of this musical art.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 0 + 3 + 0

MUS F131  Basic Music Theory I  (h)  3 Credits
Offered Fall
Intensive training in aspects of tonal harmony. Emphasis on acquiring skills in identification and notation of pitch, rhythm, scale, key, with introduction to principles of chord functions and techniques of harmonization.
Prerequisites: MUS F133 (may be taken concurrently).
Lecture + Lab + Other: 0 + 3 + 0

MUS F132  Basic Music Theory II  (h)  3 Credits
Offered Spring
Emphasis on developing skills in voice leading, part writing and acquiring techniques for analysis of tonal harmony and musical form.
Prerequisites: MUS F131.
Corequisites: MUS F134.
Lecture + Lab + Other: 0 + 3 + 0

MUS F133  Basic Ear Training I  (h)  2 Credits
Offered Fall
This course is an intensive training in aural skills acquisition, including an introduction to solfege, sight-reading, rhythmic and melodic dictation. Includes computer-assisted instruction.
Prerequisites: MUS F131 (may be taken concurrently).
Lecture + Lab + Other: 0 + 3 + 0

MUS F134  Basic Ear Training II  (h)  2 Credits
Offered Spring
This course has an emphasis on aural skills acquisition, with further development of skills in sight-reading rhythmic, melodic and harmonic dictation. Includes computer-assisted instruction.
Prerequisites: MUS F133; MUS F132 (may be taken concurrently).
Lecture + Lab + Other: 0 + 3 + 0

MUS F151  Class Lesson  (h)  1 Credit
Class instruction in piano, voice, orchestral instrument or guitar. May be repeated for credit. Course may not be audited.
Lecture + Lab + Other: 0 + 3 + 0

MUS F152  Functional Piano I  (h)  1 Credit
Offered Fall
Emphasis on beginning keyboard performance skills, sight-reading, harmonization and transposition. Course may not be audited. For music majors only with permission of instructor required.
Prerequisites: MUS F131 (may be taken concurrently).
Lecture + Lab + Other: 0 + 3 + 0
MUS F153  Functional Piano II  (h)  1 Credit
Emphasis on intermediate keyboard performance skills, sight-reading, harmonization and transposition. Course may not be audited.
Prerequisites: MUS F152; for music majors only; permission of instructor required.
Lecture + Lab + Other: 1 + 0 + 0

MUS F154  Functional Piano III  (h)  1 Credit
Offered Fall
Emphasis on upper-intermediate keyboard performance skills, sight-reading, harmonization and transposition. Course may not be audited.
Prerequisites: MUS F153; for music majors only; permission of instructor required.
Lecture + Lab + Other: 1 + 0 + 0

MUS F161  Private Lessons  (h)  2 Credits
Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required. Note: Course may not be audited. Credit-No Credit grading not permitted.
Prerequisites: Admission by audition.
Corequisites: MUS F190.
Lecture + Lab + Other: 2 + 0 + 0

MUS F162  Private Lessons  (h)  2 Credits
Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required. Note: Course may not be audited. Credit-No Credit grading not permitted.
Prerequisites: Admission by audition.
Corequisites: MUS F190.
Lecture + Lab + Other: 2 + 0 + 0

MUS F190  Recital Attendance  0 Credit
Recital and concert attendance.
Lecture + Lab + Other: 1 + 0 + 0

MUS F200X  Explorations in Music  (h)  3 Credits
Understanding and appreciation of music through explorations of its diverse styles, influences and developments. Topics include the creative process, musical forms and expression, historical and cultural contexts and popular movements and trends.
Prerequisites: Placement in WRTG F111X; sophomore standing.
Attributes: UAF Core Aesthetic Appreciation, UAF GER Arts Req
Lecture + Lab + Other: 3 + 0 + 0

MUS F203  Fairbanks Symphony Orchestra  (h)  1 Credit
Course may be repeated for credit.
Prerequisites: Admission by audition.
Lecture + Lab + Other: 0 + 3 + 0

MUS F205  Wind Symphony  (h)  1 Credit
The wind symphony is a large ensemble comprised of wind and percussion instruments. It serves as a large ensemble in the department of music. The ensemble performs several concerts per semester of literature chosen from a variety of contemporary and traditional pieces written for or transcribed for band. This course may not be audited.
Prerequisites: Admission by audition; permission of instructor.
Lecture + Lab + Other: 0 + 3 + 0

MUS F207  UAF Jazz Band  (h)  1 Credit
A performance ensemble that performs a feature concert each semester and tours frequently within the state and occasionally outside the state. May be repeated for credit. Course may not be audited.
Prerequisites: Audition and permission of instructor.
Lecture + Lab + Other: 0 + 3 + 0

MUS F211  Choir of the North  (h)  1 Credit
A mixed choir serving more advanced singers presenting concerts of more advanced choral music literature. May be repeated for credit.
Prerequisites: Admission by audition.
Lecture + Lab + Other: 0 + 3 + 0

MUS F221  History of Western Music I  (h)  3 Credits
Offered Fall
A survey of musical eras, styles, genres, historical figures and social and cultural contexts that have significantly contributed to the development of art music in Western Europe from antiquity through the eighteenth century. The lecture-based course also emphasizes music listening skills and an introduction to resources and methods in music history research.
Prerequisites: MUS F132.
Lecture + Lab + Other: 3 + 0 + 0

MUS F222  History of Western Music II  (h)  3 Credits
A survey of musical eras, styles, genres, historical figures and social and cultural contexts that have significantly contributed to the development of art music in Western Europe from the mid-eighteenth century to the present day. Further emphasizes music listening skills and an introduction to resources in music history research.
Prerequisites: MUS F221.
Lecture + Lab + Other: 3 + 0 + 0

MUS F223X  Alaska Native Music  (h, a)  3 Credits
Introductory course devoted to the study of indigenous musical cultures throughout Alaska and neighboring regions. Emphasis on musical systems in terms of their respective sounds and their relationship to culture and society, cross-cultural comparisons and a focus on both past and present musical styles.
Cross-listed with ANS F223X; ACNS F223X.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 3 + 0 + 0
MUS F231  Advanced Music Theory I  (h)  
2 Credits  
Offered Fall  
This course is an intensive study of chromatic harmony and its functions in tonal music, with an introduction to musical form. The course emphasizes analytical techniques and score study.  
Prerequisites: MUS F132; music majors must be concurrently enrolled in or have completed MUS F233.  
Lecture + Lab + Other: 2 + 0 + 0  

MUS F232  Advanced Music Theory II  (h)  
2 Credits  
Offered Spring  
This course has an emphasis on chromatic harmony and its functions in music of the late 19th and early 20th centuries. Includes an introduction to techniques and concepts in post-tonal music.  
Prerequisites: MUS F231; music majors must be concurrently enrolled in or have completed MUS F234.  
Lecture + Lab + Other: 2 + 0 + 0  

MUS F233  Advanced Ear Training I  
1 Credit  
Offered Fall  
This course emphasizes aural skills acquisition with advanced techniques in aural perception, sight-reading, dictation and chromatic materials. Includes computer-assisted instruction.  
Prerequisites: MUS F134; MUS F231 (may be taken concurrently).  
Lecture + Lab + Other: 1 + 0 + 0  

MUS F234  Advanced Ear Training II  
1 Credit  
Offered Fall  
This course emphasizes aural skills acquisition, with further development of advanced techniques involving chromaticism, rhythms, modality, sight-reading and dictation. Includes computer-assisted instruction.  
Prerequisites: MUS F233; MUS F232 (may be taken concurrently).  
Lecture + Lab + Other: 1 + 0 + 0  

MUS F245  Singer's Diction I: English and Italian  (h)  
2 Credits  
A systematic approach for singers through use of the International Phonetic Alphabet for the transcription and pronunciation of song texts in English and Italian. A singer's diction course would be valuable to radio announcers or anyone needing rules of pronunciation for names, titles, phrases, etc. in foreign languages.  
Recommended: One year of private voice lessons.  
Lecture + Lab + Other: 2 + 0 + 0  

MUS F246  Singer's Diction II: French and German  (h)  
2 Credits  
A systematic approach for singers through use of the International Phonetic Alphabet for the transcription and pronunciation of song texts in French and German. A singer's diction course would be valuable to radio announcers or anyone needing rules of pronunciation for names, titles, phrases, etc. in foreign languages.  
Recommended: One year of private voice lessons.  
Lecture + Lab + Other: 2 + 0 + 0  

MUS F253  Piano Proficiency  
0 Credit  
Final phase of piano proficiency requirement.  
Prerequisites: MUS F154.  
Lecture + Lab + Other: 0 + 1 + 0  

MUS F261  Private Lessons  (h)  
2 Credits  
Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Special permission required. Note: Course may not be audited. Credit-No Credit grading not permitted.  
Prerequisites: Admission by audition.  
Corequisites: MUS F190.  
Lecture + Lab + Other: 2 + 0 + 0  

MUS F307  Chamber Music  (h)  
1 Credit  
String, brass or woodwind chamber music; piano chamber music and accompanying; stage band; and Alaska Camerata. Note: Course may not be audited.  
Prerequisites: Permission of instructor.  
Lecture + Lab + Other: 0 + 3 + 0  

MUS F313  Opera Workshop  (h)  
1-3 Credits  
Offered Spring, As Demand Warrants  
Lecture + Lab + Other: 0 + 3-0 + 0  

MUS F317  Arctic Chamber Orchestra  (h)  
1 Credit  
The touring group of the Fairbanks Symphony Orchestra. Must be a member of the Fairbanks Symphony Orchestra. (MUS F203-EV1).  
Prerequisites: By audition only.  
Lecture + Lab + Other: 0 + 3 + 0  

MUS F331  Form and Analysis  (h)  
3 Credits  
Offered Spring, As Demand Warrants  
This course emphasizes score study, analytical techniques and critical listening skills as applied to small and large forms in works from various musical genres and style periods.  
Prerequisites: MUS F232.  
Lecture + Lab + Other: 3 + 0 + 0  

MUS F332  Introduction to Computer-Based Music Technology  (h)  
3 Credits  
Offered Spring  
An introduction to music notation software and audio equipment to enable students to create, arrange and edit music in digital formats. May be repeated for credit.  
Prerequisites: MUS F232.  
Lecture + Lab + Other: 3 + 0 + 0
MUS F351 Conducting (O, h) 3 Credits
Principles of conducting; interpretation of vocal and instrumental ensemble music.
Prerequisites: COJO F131X or COJO F141X; MUS F232.
Lecture + Lab + Other: 3 + 0 + 0

MUS F361 Private Lessons (h) 2,4 Credits
Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Note: Course may not be audited. Credit-No Credit grading not permitted. Special permission required.
Prerequisites: Admission by audition.
Corequisites: MUS F190.
Lecture + Lab + Other: 2,4 + 0 + 0

MUS F362 Private Lessons (h) 2,4 Credits
Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Note: Course may not be audited. Credit-No Credit grading not permitted. Special permission required.
Prerequisites: Admission by audition.
Corequisites: MUS F190.
Lecture + Lab + Other: 2,4 + 0 + 0

MUS F390 Junior Recital 0 Credit
Half-length solo music performance recital.
Prerequisites: MUS F222; MUS F232; MUS F262; permission of instructor.
Lecture + Lab + Other: 0 + 0 + 0

MUS F410 Women in Music History (W, h) 3 Credits
Lives and works of female musicians, composers and performers will be traced from the earliest days of the ancient and mythological periods through the medieval, Baroque, Classical and Romantic periods with special emphasis on composers of the 20th-century.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; WRTG F222.
Lecture + Lab + Other: 3 + 0 + 0

MUS F422 Music in the 17th and 18th Centuries (W, h) 3 Credits
Offered Spring; As Demand Warrants
A study of style, form and performance practices in a variety of vocal and instrumental genres throughout the Baroque and Classical eras, emphasizing musical developments in Italy, England, France, Germany, Austria and cross-cultural influences.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUS F222.
Lecture + Lab + Other: 3 + 0 + 0

MUS F423 Music of the 19th Century (W, h) 3 Credits
Offered Fall; As Demand Warrants
A study of musical and cultural trends in Western European art music of the nineteenth century emphasizing a variety of representative works by significant Romantic-era composers.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUS F222.
Lecture + Lab + Other: 3 + 0 + 0

MUS F424 Music Since 1900 (W, h) 3 Credits
Offered Spring; As Demand Warrants
A study of works by significant composers representative of modern and post-modern styles and perspectives.
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUS F222.
Lecture + Lab + Other: 3 + 0 + 0

MUS F426 Music Literature (h) 2 Credits
Music literature of brass, strings, keyboard, voice or winds, on a rotating basis as announced for the semester of offering. Course may be repeated four times for a total of 10 credits.
Prerequisites: MUS F261.
Recommended: MUS F221; MUS F222, and one course from the MUS F421-F424 Period Music History course sequence.
Lecture + Lab + Other: 2 + 0 + 0

MUS F431 Counterpoint (h) 3 Credits
Offered Fall, As Demand Warrants
This course emphasizes score study, composition exercises and techniques for the analysis of contrapuntal practices prevalent in music of the late Baroque era.
Prerequisite: MUS F232.
Lecture + Lab + Other: 3 + 0 + 0

MUS F432 Orchestration and Arranging (h) 3 Credits
Offered Fall, As Demand Warrants
This course has an emphasis on acquisition of techniques used in arranging and orchestrating music for a variety of instrumental and vocal ensembles. Includes study of score study, listening exercises and composition exercises.
Prerequisite: MUS F232.
Recommended: MUS F332.
Lecture + Lab + Other: 3 + 0 + 0
Lecture + Lab + Other:

MUS F433  Seminar in Musical Composition  (h)
2-3 Credits
Development of compositional skills based upon the works of predominately 20th-century composers. May be repeated for credit.
Prerequisites: MUS F232.
Lecture + Lab + Other: 2-3 + 0 + 0

MUS F434  Advanced Harmonic Analysis  (h)
3 Credits
This course emphasizes advanced score study analytical techniques in the study of tonal music from the Baroque, Classical, Romantic and early 20th century periods.
Prerequisites: MUS F232.
Lecture + Lab + Other: 3 + 0 + 0

MUS F435  Private Lessons in Music Composition  (h)
2-4 Credits
Offered As Demand Warrants
Private instruction in advanced music composition consisting of one private lesson per week. Repeatable for credit. Course may not be audited.
Prerequisites: MUS F433; audition.
Lecture + Lab + Other: 1-2 + 3 + 0

MUS F461  Private Lessons  (h)
2.4 Credits
Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. See accompanying box for private lesson fees. Course may not be audited; credit-no credit grading not permitted; recital attendance required.
Prerequisites: Admission by audition; special permission.
Corequisites: MUS F190.
Lecture + Lab + Other: 2.4 + 0 + 0

MUS F462  Private Lessons  (h)
2.4 Credits
Private instruction in piano, organ, voice, guitar, orchestral and band instruments. Private instruction shall consist of one private lesson per week. Music performance majors must enroll for 4 credits for MUS F361-F462 levels of study. All other students will normally enroll for 2 credits, except where special permission is granted. Course may not be audited; credit-no credit grading not permitted. Recital attendance required.
Prerequisites: Admission by audition; special permission.
Corequisites: MUS F190.
Lecture + Lab + Other: 2.4 + 0 + 0

MUS F476  Senior Project  
3 Credits
Offered As Demand Warrants
Preparation and presentation of s senior project based on a topic of the student’s choosing in consultation with the instructor. Project may take the form of a research paper, original music composition, music performance as a lecture-recital, or some combination of these as appropriate to the topic.
Prerequisites: Senior standing and permission of instructor.
Lecture + Lab + Other: 1 + 0 + 4

MUS F490  Senior Recital  
0 Credit
Full length music solo recital.
Prerequisites: MUS F362; MUS F390; music major; senior standing in music study; permission of instructor.
Lecture + Lab + Other: 0 + 0 + 0

MUS F492  Seminar  
1-4 Credits
Lecture + Lab + Other: 1-4 + 0 + 0

MUS F492P  Seminar  
1-4 Credits
Lecture + Lab + Other: 1-4 + 0 + 0

MUS F601  Introduction to Graduate Study  
2 Credits
Offered Spring
Students will gain experience with materials, techniques bibliographic sources and procedures for conducting scholarly research and writing music.
Prerequisites: Graduate standing and permission of the instructor.
Lecture + Lab + Other: 2 + 0 + 0

MUS F606  Advanced Chamber Music  
1 Credit
Offered Fall and Spring
Emphasizing advanced performance skills and experience in ensemble settings, including string, woodwind, brass, vocal chamber music, piano chamber music and accompanying. Course may not be audited.
Prerequisites: MUS F307; graduate standing; and permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

MUS F625  Topics in Music History  
3 Credits
Detailed study of selected topics in music history and/or literature.
Specific topic to be announced in advance of course offering.
Lecture + Lab + Other: 3 + 0 + 0

MUS F626  Advanced Music Literature  
2 Credits
Advanced music literature of brass, strings, keyboard, voice or winds, on a rotating basis as announced each semester. Course may be repeated up to four times for a total of 10 credits.
Prerequisites: MUS F461.
Recommended: MUS F221; MUS F222; and/or courses from the MUS F421-F424 sequence.
Lecture + Lab + Other: 2 + 0 + 0

MUS F631  Seminar in Music Theory: History and Pedagogy  
3 Credits
Historical development of music theory and music theory pedagogy (current teaching practices and survey of available teaching materials).
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

MUS F632  Topics in Music Theory  
3 Credits
Offered Spring
A detailed study of selected topics in music theory, including aspects of common-practice harmony, musical form, techniques for analysis, and historical perspectives on the evolution of theory concepts and constructs.
Prerequisites: Graduate standing and permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0
Music Education (MUED)

MUED F110  Becoming a Music Teacher in the 21st Century
2 Credits
Introduction and exploration of the profession of music education. Focus on national educational policies and practices in education and music education. Opportunities for interaction with Alaska teachers, student teachers and students in the music education program.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 2 + 0 + 0

MUED F201  Introduction to Music Education
2 Credits
Introduction to professional education with special emphasis on music education as practiced at the elementary, middle school and high school levels. Review of cultural, social, and current legal requirements that influence education and music education in the U.S. and Alaska.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; MUED F110.
Lecture + Lab + Other: 2 + 0 + 1

MUED F309  Elementary School Music Methods
3 Credits
Principles, procedures and materials for teaching music to children at the elementary level.
Cross-listed with ED F309.
Lecture + Lab + Other: 3 + 0 + 0

Natural Resources Management (NRM)

NRM F101  Natural Resources Conservation and Policy
3 Credits
Offered Fall
Conservation of natural resources including history, ecological and social foundations. Examines principles of sustained yield, carrying capacity, supply and demand, and world population growth as applied to agriculture, range, forest, wildlife, fisheries, recreation, minerals and energy management. A wide range of perspectives is presented to help students develop a personal philosophy toward natural resources. Prepare a multiple resource observation plan for an undeveloped area on campus. Optional all-day field trips take place the first two Saturdays of the semester.
Prerequisites: Placement in WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0
NRM F102 Practicum in Natural Resources Management
1-2 Credits
Practical experience in natural resources management. Supervised individual study on a farm, in a greenhouse, managed forest, agency or business, or another approved location.
Prerequisites: Natural Resource Management majors only and permission of instructor.
Lecture + Lab + Other: 1-2 + 0 + 0

NRM F106 Orientation to Natural Resource Management
1 Credit
Offered Spring
Overview of career opportunities in natural resources. Includes discussions with research faculty and upper class students involved in various aspects of resource management issues.
Lecture + Lab + Other: 1 + 0 + 0

NRM F111 Introduction to Sustainability Science
3 Credits
Offered Spring
Sustaining the health, wellbeing, and productivity of social-ecological systems requires integrated assessments of social, economic, and ecological sustainability challenges. Meeting these challenges often requires action plans that move from understanding theory to the implementation of new policies and facilitation of behavioral change. This course introduces the principles that form the basis of sustainability science, with an emphasis on natural resource management issues.
Prerequisite: NRM F101; placement in WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

NRM F150 Plant Propagation I: Seeds and Seed Germination (a)
1 Credit
Principles and practices of plant propagation useful in horticulture, botany, forestry, agronomy, revegetation and land reclamation projects and plant research. Emphasis on seed and fern spore biology, seed dormancy mechanisms, germination techniques, and the seed industry of Alaska native and economically useful plants.
Recommended: a high school course in biology.
Lecture + Lab + Other: 1 + 0 + 0

NRM F151 Plant Propagation II: Vegetative Propagation (a)
1 Credit
Principles and practices of plant propagation useful in horticulture, botany, forestry, agronomy, revegetation and land reclamation projects and plant research. Course will cover methods of vegetative propagation including cuttings; layering; grafting; bulb, corn and tuber propagation; and micro propagation through tissue culture. Emphasis will be on Alaska native and economically useful plants.
Recommended: basic course in high school biology.
Lecture + Lab + Other: 1 + 0 + 0

NRM F152 Plant Propagation Practicum (a)
1 Credit
Methods of plant propagation useful in horticulture, botany, forestry, agronomy, revegetation and land reclamation projects and plant research. The practicum will emphasize hands on applications of propagation methods for commercial, educational and research applications. Emphasis will include horticultural seed production, landscape seedling and restoration practices, intermittent mist propagation systems, spore propagation and commercial micropropagation (tissue culture).
Prerequisites: NRM F150 and F151.
Lecture + Lab + Other: 0 + 0 + 3

NRM F154 Wild and Cultivated Berries of Alaska
1 Credit
Introduction to cultivated fruit crops and Alaska wild berries. Course includes plant biology, management of wild berry stands, field cultivation and uses of fruits including strawberries, blueberries, currants, gooseberries, cloudberries, raspberries and more.
Recommended: High school biology; or completion of master gardener program.
Lecture + Lab + Other: 1 + 0 + 0

NRM F161 Wilderness Leadership Education
3 Credits
Offered Summer As Demand Warrants
Introduction to outdoor education. Includes both theoretical and practical exposure to quality judgment and decision-making, environmental education techniques and leadership development in the wilderness setting. Provides detailed exposure to the Wilderness Education Association's 18 essential components of wilderness leadership and backcountry safety. The field portion of the course includes detailed instruction in and mentored experience with modern backcountry travel techniques. Successful completion earns certification in the Wilderness Stewardship Program. Field program requires travel through rough un-trailled terrain with heavy packs and average strength and stamina. No use of alcohol, tobacco, illegal drugs or firearms.
Prerequisites: Permission of instructor.
Recommended: BIOL F104X, NRM F101 and physical geography.
Lecture + Lab + Other: 3 + 0 + 0

NRM F204 Public Lands Law and Policy
3 Credits
Offered Palmer: Even-numbered Years
Background on selected federal lands management legislation and agency policies affecting resources conservation, development and preservation.Offered Fairbanks: Spring;
Prerequisites: Sophomore class standing.
Lecture + Lab + Other: 3 + 0 + 0

NRM F210 Principles of Sustainable Agriculture (a)
3 Credits
Offered Spring
Development of a basic understanding of sustainable agriculture concepts including exposure to economic, social, and environments principles and ideas of sustainable agricultural practices. Agroecology is introduced as a backdrop for the development of sustainable techniques for soil, plant, and animal agriculture. Throughout the semester, sustainable agriculture concepts and principles will be related to current issues such as population growth, resource use and availability, and changing social structures and preferences.
Prerequisites: NRM F101.
Lecture + Lab + Other: 3 + 0 + 0

NRM F211 Introduction to Applied Plant Science
3 Credits
Offered Fall
Basic principles and requirements for plant growth and development with special attention to the production and management of field and greenhouse grown crops.
Lecture + Lab + Other: 2 + 3 + 0
NRM F212  Greenhouse Management
3 Credits
Offered Spring
The greenhouse as a controlled environment for research, education and commercial production of plants; the physical environment; environmental controls and monitors; plant cultivation techniques and crop scheduling useful in plant science and commercial production.
Lecture + Lab + Other: 3 + 0 + 0

NRM F220  Introduction to Animal Science
3 Credits
Offered Fall
Introduction to the various disciplines that form the study of animal science. Topics include animal nutrition, physiology of reproduction and lactation, genetics and animal breeding, animal behavior, environmental physiology, animal health and welfare. Information is presented as it applies to traditional and non-traditional livestock species with emphasis on applications pertinent to Alaska.
Prerequisites: NRM F210.
Lecture + Lab + Other: 3 + 0 + 0

NRM F240  Natural Resources Measurement and Inventory
3 Credits
Offered Fall
Techniques and instrumentation used to measure and inventory natural resources, including land, timber, range, wildlife, water and recreation resources.
Prerequisites: MATH F151X.
Lecture + Lab + Other: 2 + 3 + 0

NRM F251  Silvics and Dendrology
4 Credits
Offered Spring
Ecological requirements and characteristics of tree species of the Northern forest and western North American forest. Silvical characteristics including range, climate, soils, shade tolerance, growth and principal enemies. Family and species characteristics for identification on sight or with a key. Field trips required.
Prerequisites: BIOL F115X; BIOL F116X; NRM F375.
Lecture + Lab + Other: 3 + 3 + 0

NRM F277  Introduction to Conservation Biology
3 Credits
Offered Spring
Introduction to the basic ecological, genetic, management, legal and historical developments in conservation biology and focused efforts to manage biological diversity resources, with a status review of important habitats and endangered species.
Prerequisites: BIOL F115X; BIOL F116X.
Lecture + Lab + Other: 3 + 0 + 0

NRM F290  Resource Management Issues at High Latitudes
2 Credits
Broad perspective of high latitude resource management issues. On-site analyses of resource management needs, opportunities and/or conflicts in agriculture, forestry, mining, seafood, petroleum, recreation and tourism. Includes 10 day field trip at the end of spring semester. Students must provide own sleeping gear, rain gear and hiking boots. Students must be able to hike forest trails and camp under conditions of inclement weather. May be repeated for credit with instructor's permission.
Prerequisite: Permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

NRM F300  Internship in Natural Resources Management
1-3 Credits
Offered As Demand Warrants
Supervised pre-professional experience in a business or agency (public or private). Open to students majoring or minoring in natural resources management only. Course may be repeated for credit up to a maximum of 6 credits.
Prerequisites: NRM F101; junior standing with 3.0 GPA; permission of instructor; an approved internship plan.
Lecture + Lab + Other: 0 + 0 + 3-10

NRM F303X  Environmental Ethics and Actions (h)
3 Credits
Offered Spring
Exploration of the history of modern Western views of the relationship between people and nature, alternative foundations for an environmental ethic (utilitarianism, spiritual activity, rights-based and respect-based ethics) and practices of such ethics in business, profession and general lifestyle today.
Prerequisites: Junior standing; placement in WRTG F111X.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

NRM F313  Introduction to Plant Pathology
4 Credits
Offered Spring Even-numbered Years
Applied ecological treatment of soil, plant and grazing animal relationships on uncultivated lands. Origin of the discipline, management practices and important rangelands of North America; emphasis on Alaska's rangelands and grazers.
Prerequisites: BIOL F115X; BIOL F116X; BIOL F239.
Lecture + Lab + Other: 3 + 0 + 0

NRM F312  Introduction to Range Management
3 Credits
Offered Fall Odd-numbered Years
Applied ecological treatment of soil, plant and grazing animal relationships on uncultivated lands. Origin of the discipline, management practices and important rangelands of North America; emphasis on Alaska's rangelands and grazers.
Prerequisites: BIOL F115X; BIOL F116X.
Lecture + Lab + Other: 3 + 0 + 0

NRM F338  Introduction to Geographic Information Systems
3 Credits
Offered Fall
Geographic data concepts including mapping systems, data sources, editing data, GIS analysis and computer mapping. Introduction to global positioning systems. GIS applications in natural resources management.
Prerequisites: Knowledge of PCs or Unix workstations desirable.
Cross-listed with GEOG F338.
Lecture + Lab + Other: 2 + 3 + 0
NRM F361  Advanced Wilderness Leadership Education 3 Credits
Offered Summer, As Demand Warrants
The natural environment, concentrating on outdoor leadership, environmental ethics, minimum impact camping, forest and Arctic natural history, and adaptable judgment and decision-making. Includes hiking through boreal forest and along tundra ridges, river crossing, glacier ascent, and skills to do these activities safely. Other mediums of travel could include sea kayaks, canoes or rock climbing. Three lecture sessions will preview a demanding educational field program of 5-15 days requires travel through rough un-trailed terrain with heavy packs or boats and average strength and stamina. No use of alcohol, tobacco, illegal drugs or firearms.
Prerequisites: NRM F101; NRM F161; permission of instructor.
Recommended: NRM F366 and NRM F464.
Lecture + Lab + Other: 3 + 0 + 0

NRM F365  Principles of Outdoor Recreation Management 3 Credits
Offered Fall Even-numbered Years
Theories, practices, economics and problems fundamental to the use of land and related natural resources for recreation. The course focuses on human dimension related issues faced by recreation managers and research to address those issues.
Prerequisites: NRM F101; STAT F200X; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

NRM F366  Survey Research in Natural Resources Management 3 Credits
Offered Spring
Research methods to support research and planning in recreation and human dimensions of natural resources management. Course topics include quantitative theories and concepts that have been applied to study human dimensions of natural resource management, study design, survey development and administration, sampling and data analysis.
Prerequisites: NRM F101; STAT F200X.
Lecture + Lab + Other: 2 + 3 + 0

NRM F369  GIS and Remote Sensing for Natural Resources 3 Credits
Offered Spring Even-numbered Years
Introduces the principles and terminology of natural resources, ecosystem management and landscape ecology while developing analytical skills using spatial technologies consisting of geographic information systems, remote sensing, and global positioning systems.
Prerequisites: NRM F338.
Recommended: NRM F312.
Lecture + Lab + Other: 1.5 + 1.5 + 0

NRM F370  Introduction to Watershed Management 3 Credits
Offered Fall
The hydrologic cycle and the influence of land management techniques on water quantity, quality and timing. Water yield, soil erosion and non-point pollution, snowpack management, and land use alternatives.
Prerequisites: NRM F101.
Lecture + Lab + Other: 2 + 3 + 0

NRM F375  Natural Resource Ecology 3 Credits
Offered Spring
Basic ecology concepts, including physical (wind, temperature, water, etc.), biotic (population and community dynamics), genetic successional and landscape dynamics will be covered. Basic physiological characteristics of trees, succession, vegetation classification, and related concepts. Stand structure, diversity, competition, growth, forest-soil interactions, biomass, nutrient distribution and dynamics, energy relations, ecology of disturbances. Incorporation of these ecological principles into management plans.
Prerequisites: NRM F240.
Lecture + Lab + Other: 3 + 0 + 0

NRM F380  Soils and the Environment 3 Credits
Offered Fall
Soil development and classification; physical and chemical properties; biological activity; water movement and nutrient cycling in natural and manipulated ecosystems.
Prerequisites: CHEM F105X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 2 + 3 + 0

NRM F403  Environmental Decision-Making 3 Credits
Offered Fall
Analysis of philosophical/ethical, economic, scientific and political foundations of diverse natural resource management perspectives.
Prerequisites: COJO F131X or COJO F141X; NRM F101; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

NRM F407  Environmental Law 3 Credits
Offered Spring Odd-numbered Years
The role of common law theory in regulatory, statutory and constitutional interpretation in the field of environmental protection, including air and water pollution, toxic/hazardous substances and land-use regulation.
Prerequisites: Junior or senior class standing.
Lecture + Lab + Other: 3 + 0 + 0

NRM F410  Numerical Methods for Natural Resources Management 4 Credits
Offered Fall
Teaches the most up-to-date numerical methods for natural resources managers and researchers. Labs cover important computer skills to help students excel in modern natural resources management.
Recommended: MATH F314.
Lecture + Lab + Other: 3 + 3 + 0

NRM F430  Resource Management Planning 3 Credits
Offered Spring
Application of planning and conflict resolution principles to natural resources management. Examines plans prepared in response to current Alaska resource disputes, including wolf, brown bear, boreal forest and recreation river plans. Includes public involvement, consensus building, the basic steps in the planning process and resource dispute simulations. Review resource management plans and develop plans for a local resource management issue.
Prerequisites: Senior standing.
Stacked with NRM F630.
Lecture + Lab + Other: 3 + 0 + 0
NRM F435  GIS Analysis
4 Credits
Offered Spring
GIS analysis of natural resources including spatial query, attribute query, vector, grid, image, topographic and network analysis techniques. Cross-listed with GEOG F435.
Lecture + Lab + Other: 3 + 3 + 0

NRM F440  Silviculture
3 Credits
Offered Fall Even-numbered Years
Provides an understanding of the science and art of forest stand management. Silviculture is the theory and practice of controlling forest establishment, composition, structure and growth of forests. For persons in land management, including timber, woodlot, wildlife habitat, streamside and aesthetics. Prerequisites: NRM F251; NRM F375 or BIOL F371; junior standing.
Lecture + Lab + Other: 2 + 3 + 0

NRM F450  Forest Management
3 Credits
Offered Spring Odd-numbered Years
Forest land management for production of goods and services; relation of timber production to other forest land uses. Sustained yield, allowable cut, information needs, valuation and decision making. Prerequisites: ECON F235X; NRM F251; NRM F240; Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

NRM F452  Forest Health and Protection
3 Credits
Offered Spring Even-numbered Years
Principles and practical management systems for protecting forests from fire, insects and diseases. Factors in managing forest ecosystems and problems and techniques important in high latitude forests, especially in Alaska. Prerequisites: BIOL F115X; BIOL F116X; BIOL F239; NRM F251; NRM F375 or BIOL F371.
Lecture + Lab + Other: 3 + 0 + 0

NRM F453  Harvesting and Utilization of Forest Products
3 Credits
Offered Fall Odd-numbered Years
Manual and mechanized timber harvesting systems including timber cutting, yarding and transport processes. Technology of processing wood into various products including lumber, plywood, veneer, pulp and energy. Introduction to supply and demand of forest products from a world, state and local perspective. Labs include visits to local forest products companies, chainsaw safety and wood identification. Prerequisites: NRM F101. Lecture + Lab + Other: 2 + 3 + 0

NRM F454  Comparative Farming and Sustainable Food Systems
3 Credits
Offered Fall
Principles of food systems geography and food security. Cross-cultural examination of dietary traditions, poverty, hunger, equity and food access and distribution. Comparison of multiple varieties and scales of agricultural systems in the context of social, ecological and economic sustainability. Considers Alaskan and other high-latitude food systems, including country food, wild game harvest and rural to urban nutrition transition. Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing. Cross-listed with GEOG F454 and CCS F454.
Lecture + Lab + Other: 3 + 0 + 0

NRM F461  Interpretive Services
3 Credits
Offered As Demand Warrants
Naturalist and other visitor programs in outdoor recreation areas: philosophy, planning and development of interpretive programs; resources, agencies, users, interpretive media and program evaluation. Prerequisites: Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

NRM F464  Wilderness Management
3 Credits
Offered Spring
Wilderness ecology and land management practices on lands designated as wilderness. Plus, visitor management regimes are analyzed. Both national and international views of wilderness are presented. Prerequisites: A basic course in ecology; resource management. Cross-listed with GEOG F464.
Lecture + Lab + Other: 3 + 0 + 0

NRM F466  Environmental Soil Chemistry
3 Credits
Offered Spring Odd-numbered Years
Basic principles of soil chemical processes. Covers soil solution chemistry; precipitation/dissolution and soil colloids; soil solid phase; soil acidity/alkalinity; adsorption and ion exchange; reduction/oxidation reactions; and kinetics of soil chemical processes. In the lab students will operate equipment for soil chemical analysis, experience computer simulation models for soil chemistry and become familiar with the terms and approaches for writing technical reports. Prerequisites: CHEM F105X; CHEM F106X; NRM F380. Lecture + Lab + Other: 2 + 3 + 0

NRM F470  Terrestrial Carbon Management
3 Credits
Offered Spring
Climate change and its relationship to carbon dynamics have become elements of natural resource management options for land owners within the state and across the country and the globe. The course will present a broad scale description of the direction for forest carbon management and proposed methods for inventorying and documenting carbon dynamics attached to industry and down to the landowner. Prerequisites: BIOL F371 or NRM F375. Lecture + Lab + Other: 3 + 0 + 0

NRM F480  Soil Management for Quality and Conservation
3 Credits
Offered Fall Odd-numbered Years
Managing soil in disturbed and natural ecosystems to reduce soil losses and maintain or improve soil quality. Methods for maintaining soil quality, preserving soil against loss from erosion, remediating contaminated soil and reclaiming degraded soils. Prerequisites: NRM F380. Lecture + Lab + Other: 3 + 0 + 0

NRM F484  Senior Thesis in Natural Resources Management (W)
2 Credits
Problem-solving with emphasis on writing and analysis. Individual project under the guidance of faculty sponsor involving formulation of a question in natural resources management and preparation of a formal, comprehensive written report. Final thesis and presentation. Prerequisites: GEOG F483 and permission of instructor. Lecture + Lab + Other: 2 + 0 + 0
NRM F485  Soil Biology  (n)  
3 Credits  
Offered Fall Even-numbered Years  
Major groups of organisms in the soil and their interrelationships;  
the major biological processes which take place in the soil and their  
significance to soil productivity, plant growth and environmental  
quality; and methodology for studying soil organisms and soil biological  
processes.  
Prerequisites: A course in biology or microbiology and a course in soils.  
Lecture + Lab + Other: 3 + 0 + 0  
NRM F488  Land Management of Ecosystems  (a)  
3 Credits  
Offered Spring As Demand Warrants  
Natural resource topics related to the management of the terrestrial  
environment in regions such as the Pacific Northwest, Hawaii and the  
circumpolar North. A basic understanding of the ecology of a specific  
region is presented prior to a spring break field trip designed to give  
the student a broad understanding of important topics affecting the  
management of important natural resources in the selected region.  
Prerequisites: NRM F211; NRM F277; NRM F375 or BIOL F371.  
Stacked with NRM F688.  
Lecture + Lab + Other: 3 + 0 + 40  
NRM F489  Alaska Soil Geography Field Trip  (a)  
1 Credit  
Offered Summer; As Demand Warrants  
Soil geography along an ecological transect in selected areas of  
Alaska. Hands-on experiences with soil morphology and exploration  
of the relationships between soil genesis and other ecological factors  
including vegetation, geology, landform, climate and hydrology. Includes  
discussion of soil classification and land use interpretations. Students  
must provide their own camp gear, be able to walk on uneven or rocky  
ground and be physically fit for field work.  
Prerequisites: NRM F380, or a course in soils.  
Stacked with NRM F689.  
Lecture + Lab + Other: 1 + 0 + 0  
NRM F601  Research Methods in Natural Resources Management  
2 Credits  
Offered Fall  
Introduction for graduate students to the research methods employed in  
the various fields of resource management, including agriculture, forestry,  
ecology and social sciences. Designed to acquaint students with the  
relationship between theory and research, the nature of scientific inquiry,  
approaches to research, the sequence of steps involved in scientific  
investigation and the presentation of research results.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 2 + 0 + 0  
NRM F613  Resilience Internship  
2 Credits  
Offered Fall  
Students of the Resilience and Adaptation Program participate in  
internships to broaden their interdisciplinary training, develop new  
research tools and build expertise outside their home disciplines.  
Internships are for eight to ten weeks of full time commitment and  
take place during the student’s first summer in the program. In autumn  
students meet to discuss their internship experiences and make public  
presentations.  
Prerequisites: ANTH F667, BIOL F667, ECON F667 or NRM F667;  
ANTH F668, BIOL F668, ECON F668 or NRM F668.  
Cross-listed with ANTH F617; BIOL F613; ECON F613.  
Lecture + Lab + Other: 2 + 0 + 0  
NRM F616  Ecological Background for Resilience and Adaptation  (a)  
1 Credit  
Offered Fall  
Provides the ecological background that is necessary for understanding the  
role of ecology in complex systems involving interactions among  
biological, economic, and social processes. Designed for incoming  
students of the Resilience and Adaptation Program (RAP), who have not  
received training in ecology.  
Prerequisites: Graduate standing.  
Cross-listed with BIOL F616.  
Lecture + Lab + Other: 1 + 0 + 0  
NRM F630  Resource Management Planning  
3 Credits  
Offered Spring  
Application of planning and conflict resolution principles to natural  
resources management. Examines plans prepared in response to current  
Alaska resource disputes, including wolf, brown bear, boreal forest and  
recreation river plans. Includes public involvement, consensus building,  
the basic steps in the planning process and resource dispute simulations.  
Review resource management plans and develop plans for a local  
resource management issue.  
Prerequisites: Graduate standing.  
Stacked with NRM F430.  
Lecture + Lab + Other: 3 + 0 + 0  
NRM F637  Evolution of Conservation Concepts and Policy  
3 Credits  
Offered Fall Even-numbered Years  
Resource policy issues development and implementation including  
forestry, mining, fisheries, oil, wildlife and other topics as demand  
waits. Focus on policy issues involved in management of Alaska’s  
resources.  
Prerequisites: Graduate standing or permission of instructor.  
Cross-listed with ECON F637.  
Lecture + Lab + Other: 3 + 0 + 0  
NRM F638  GIS Programming  
3 Credits  
Offered Spring Odd-numbered Years  
GIS programming for ArcView, Arc/Info and ArcGIS. Programming  
techniques for customizing GIS, efficient batch processing, and  
development of custom tools for GIS display and analysis.  
Prerequisites: NRM F338.  
Lecture + Lab + Other: 3 + 0 + 0  
NRM F641  Natural Resource Applications of Remote Sensing  
3 Credits  
Offered Spring Even-numbered Years  
Application of remote sensing for inventory and analysis of natural  
resources. Topics include aerial photography applications and digital  
remote sensing, including image display, rectification, classification and  
accuracy assessment.  
Prerequisites: NRM F338.  
Lecture + Lab + Other: 3 + 0 + 0
NRM F647  Global to Local Sustainability  
3 Credits  
Offered Fall  
Explores the basic principles that govern resilience and change of ecological and social systems. Principles are applied across a range of scales from local communities to the globe. Working within and across each of these scales, students address the processes that influence ecological, cultural and economic sustainability, with an emphasis on northern examples.  
Prerequisites: Graduate standing in a natural science, social science, humanities or interdisciplinary program at UAF.  
Cross-listed with ANTH F647; BIOL F647; ECON F647.  
Lecture + Lab + Other: 3 + 0 + 0  

NRM F649  Integrated Assessment and Adaptive Management  
3 Credits  
Offered Spring  
An interdisciplinary exploration of the theoretical and practical considerations of integrated assessment and adaptive management. Students survey concepts important in understanding societal and professional-level decision-making. Students work as individuals and as a team to undertake case studies with relevance to integrated assessment and adaptive management. Collectively, the class builds a portfolio of cases and conducts an integrated assessment. Note: In case of enrollment limit, priority will be given to graduate students in the Resilience and Adaptation Program in order for them to be able to meet their core requirements.  
Prerequisites: Graduate student standing in a natural science, social science, humanities or interdisciplinary program at UAF or another university.  
Recommended: ANTH F647, BIOL F647, ECON F647; ANTH F667, BIOL F667, ECON F667, NRM F667.  
Cross-listed with ANTH F649; BIOL F649; ECON F649.  
Lecture + Lab + Other: 3 + 0 + 0  

NRM F651  Advanced Silviculture  
3 Credits  
Offered Spring Odd-numbered Years  
Examines biological and environmental aspects of silviculture. Addresses stand manipulation from the "silvicultural system" approach and includes regeneration, vegetation management, stand tending, "harvest" with considerations for biodiversity, "old-growth," wildlife habitat and timber production. Ecological classification, landscape management and pre-harvest silvicultural prescriptions will be addressed. Must be able to participate in one weekend field trip.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

NRM F655  Sustainable Livelihoods and Community Well-being  
3 Credits  
Offered Fall  
Review the basic principles that govern the sustainability of systems and look at the cultural practices and individual behaviors that enhance or degrade sustainable livelihoods and community well-being. Emphasis is on understanding the historical context of ideas about sustainability, on understanding the nature and magnitude of the social, economic and ecological dimensions of contemporary change, and the "best practices" currently in place for communities to respond effectively to change.  
Prerequisites: Graduate standing.  
Cross-listed with NRM F656 and GEOG F656.  
Lecture + Lab + Other: 3 + 0 + 0  

NRM F656  Advanced Outdoor Recreation  
3 Credits  
Offered Fall Even-numbered Years  
Evaluation of contemporary outdoor recreation management models and the linkage between management programming and visitor response. Development of a synthesized model and testing with contemporary problems.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

NRM F665  Survey Research in Human Dimensions of Natural Resources  
3 Credits  
Offered Fall Even-Numbered Years  
Social science concepts applied to survey-based human dimensions research. Survey research methods including operationalizing research questions into measurable variables, designing survey instruments, assessing reliability and validity, sampling and data analysis.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

NRM F666  Resilience Seminar I  
1 Credit  
Offered Fall  
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are relevant to sustainability. A considerable portion of the seminar is student-directed, with students assuming leadership in planning seminar activities with the instructor.  
Prerequisites: Must be enrolled in the Resilience and Adaptation graduate program.  
Recommended: ANTH F647, BIOL F647, ECON F647 or NRM F647 (taken concurrently).  
Cross-listed with ANTH F667; BIOL F667; ECON F667.  
Lecture + Lab + Other: 2 + 0 + 0  

NRM F667  Resilience Seminar II  
1 Credit  
Offered Spring  
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research relevant to sustainability. The seminar provides support to each student planning his/her summer internship and preparing and presenting a thesis research prospectus.  
Prerequisites: ANTH F647, BIOL F647, ECON F647 or NRM F647; ANTH F667, BIOL F667, ECON F667 or NRM F667.  
Cross-listed with ANTH F668; BIOL F668; ECON F668.  
Lecture + Lab + Other: 2 + 0 + 0  

NRM F668  Biometeorology  
3 Credits  
Offered Fall Odd-numbered Years  
Radiation and energy balance relationships for natural and modified surfaces; physical environment in relation to biology and ecology of plants and animals; implications for resource and environmental management.  
Prerequisites: Biological or physical science background; graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0
<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Offered</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Lecture + Lab + Other</th>
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</thead>
<tbody>
<tr>
<td>NRM F672</td>
<td>Nutrient Cycling</td>
<td>3</td>
<td>Spring Odd-numbered Years</td>
<td>Examination of physical, chemical and biological processes controlling nutrient element recycling, availability and retention in natural and managed ecosystems.</td>
<td>Prerequisites: CHEM F106X; NRM F375 or BIOL F371; NRM F380.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>NRM F675</td>
<td>Theoretical Forest Ecosystem Science</td>
<td>3</td>
<td>Spring Even-numbered Years</td>
<td>Theoretical concepts of forest ecosystem dynamics including theoretical developments in the description of plant growth, ecosystem productivity, decomposition and plant carbon allocation. Development of a model using the basic theoretical constructs.</td>
<td>Prerequisites: Undergraduate major in biological sciences or renewable resources including at least one course in ecology, one approved college-level mathematics course and graduate standing.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>NRM F685</td>
<td>Soil Microbiology and Biochemistry</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Current topics in soil microbiology and biochemistry. Based on readings from the primary literature and discussions in class. Each student will be expected to lead at least one discussion, write a research proposal and present the proposal to class.</td>
<td>Prerequisites: At least one course in soil science; one course in microbiology.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>NRM F688</td>
<td>Land Management of Ecosystems</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Natural resource topics related to the management of the terrestrial environment in regions such as the Pacific Northwest, Hawaii and the circumpolar North. A basic understanding of the ecology of a specific region is presented prior to a spring break field trip designed to give the student a broad understanding of important topics affecting the management of important natural resources in the selected region.</td>
<td>Prerequisites: NRM F211; NRM F277; NRM F375 or BIOL F371. Stacked with NRM F488.</td>
<td>3 + 0 + 40</td>
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<tr>
<td>NRM F689</td>
<td>Alaska Soil Geography Field Trip</td>
<td>1</td>
<td>Summer As Demand Warrants</td>
<td>Soil geography along an ecological transect in selected areas of Alaska. Hands-on experiences with soil morphology and exploration of the relationships between soil genesis and other ecological factors including vegetation, geology, landform, climate and hydrology. Includes discussion of soil classification and land use interpretations. Students must provide their own camp gear, be able to walk on uneven or rocky ground and be physically fit for field work.</td>
<td>Prerequisites: NRM F380, or a course in soils. Stacked with NRM F489.</td>
<td>1 + 0 + 0</td>
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<tr>
<td>NRM F692</td>
<td>Graduate Seminar</td>
<td>1-3</td>
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<td>Topics in natural resources management and geography explored through readings, student presentations, group discussions and guest speakers.</td>
<td>Prerequisites: Graduate standing. Cross-listed with GEOG F692.</td>
<td>1-3 + 0 + 0</td>
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<tr>
<td>NRM F698</td>
<td>Non-thesis Research/Project</td>
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<td>NRM F699</td>
<td>Thesis</td>
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<td>NRM F699A</td>
<td>Thesis</td>
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<td>NRM F699B</td>
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<td>NRM F699C</td>
<td>Thesis</td>
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### Occupational Safety and Health (OSH)

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<tr>
<th>Course Code</th>
<th>Course Name</th>
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<th>Lecture + Lab + Other</th>
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<tbody>
<tr>
<td>OSH F108</td>
<td>Injury Prevention and Risk Management</td>
<td>4</td>
<td>Fall</td>
<td>Course identifies safety, health management and incident prevention in the workplace. Emphasis on materials handling, electrical and machine safety, first response to fire and medical emergencies, safety and health hazards, and accident prevention.</td>
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<td>3 + 2 + 0</td>
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<tr>
<td>OSH F110</td>
<td>Program Assessments, Development and Implementation</td>
<td>4</td>
<td>Fall</td>
<td>Examines the role of a safety program in the workplace. Emphasis on program assessment, design, development, implementation and evaluation of safety programs.</td>
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<td>4 + 0 + 0</td>
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<tr>
<td>OSH F120</td>
<td>Safety Program Management and Recordkeeping</td>
<td>3</td>
<td>Spring</td>
<td>The role of safety in the business community. Emphasis on philosophy of safety and health efforts by management. Examines the role of the safety manager and the types of and need for accurate recordkeeping.</td>
<td>Prerequisites: OSH F110.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>OSH F180</td>
<td>Introduction to Industrial Hygiene</td>
<td>4</td>
<td>Spring</td>
<td>Acute and chronic health effects of exposures to chemical, physical and biological agents in the workplace. Emphasizes types of exposure and biological effects, exposure guidelines and basic workplace monitoring.</td>
<td>Prerequisites: PRT F110.</td>
<td>3 + 2 + 0</td>
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</tbody>
</table>
OSH F201  Workplace Injury and Incident Evaluations
4 Credits
Offered Spring
Assessing and evaluating workplace hazards. Investigation of worker complaints and actual health and safety incidents. Includes practical applications and basic accident investigation case studies.
Prerequisites: OSH F108.
Lecture + Lab + Other: 4 + 0 + 0

OSH F250  Hazardous Material Operation
3 Credits
Offered Spring
Identifies the policies, procedures and equipment needed to deal with hazardous materials. Emphasizes the types of hazards, planning, organization and training needed to work safely with hazardous materials.
Prerequisites: OSH F180.
Lecture + Lab + Other: 2 + 2 + 0

Paralegal Studies (PLS)

PLS F102  Introduction to Paralegal Studies
3 Credits
Sources of law in the American tripartite system of government, with emphasis on state and federal court systems. Substantive law is studied, including administrative law, business organization, civil procedure, contract, criminal, employment, family, probate, real estate and tort law. Introductory instruction in legal writing and legal research using the law library and Westlaw.
Lecture + Lab + Other: 3 + 0 + 0

PLS F105  Introduction to Paralegal Ethics
2 Credits
Introduction to the ethical obligations owed by both lawyers and paralegals to their clients, other lawyers, the court systems where they work and the general public. Alaska Rules of Professional Conduct and the canons of ethics promulgated by the two nationwide paralegal associations.
Lecture + Lab + Other: 2 + 0 + 0

PLS F201  Practical Paralegal Skills
3 Credits
The practical skills required of a paralegal in the job market, including drafting legal documents, pleadings and office correspondence, fact gathering through interviewing and investigating, use of the Internet for legal research, pretrial procedures, focusing primarily on civil rules 30, 33, 34, 35 and 36, and assisting at trial.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F203  Torts
3 Credits
Offered Spring
Study of the essentials needed to effectively assist an attorney in the filing or defense of claims based on personal injury and property damage. A basic vocabulary of legal terminology associated with tort law is studied together with important statutes and case law. Emphasis on Alaska law.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F207  Civil Procedure
3 Credits
Offered Fall
Basic vocabulary and concepts essential to effectively assist an attorney with the procedural aspects of civil litigations.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F213  Criminal Law for Paralegals
3 Credits
Offered Fall
Study of both the substantive criminal law and the rudiments of criminal procedure, focusing on both Alaska law and procedure and important constitutional considerations associated with due process, search and seizure and Fifth Amendment rights. Learn and work with a basic vocabulary unique to criminal law and procedure. Note: Does not substitute for JUST F352.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F215  Contracts/Real Property
3 Credits
Offered Spring
Basic vocabulary and concepts essential to effectively assist an attorney with the preparation of contracts and real property transactions.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F240  Family Law
3 Credits
Offered Fall
Basic vocabulary and concepts essential to understanding family law and assisting a practicing attorney in matters involving marriage issues, premarital contracts, annulment, divorce, dissolution, property division, child custody, support and visitation.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F242  Employment and Administrative Law
3 Credits
Offered Spring
Legal principles which define the relationship between employers and employees. Includes obligations imposed by Federal and Alaska state statutes and administrative regulations. Includes how administrative agencies are created and how they provide administrative law through promulgation of rules and regulations and through quasi-judicial decisions.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F250  Probate Law
3 Credits
Offered Spring
Basics of probate law and the uniform probate code. Includes the preparation and interpretation of wills, administration of decedent's estates, intestate succession laws, guardianships and other related probate matters. Focus on Alaska statutes and probate rules.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0
PLS F260  Computers in the Law Office
            3 Credits
Offered Fall
Introduction to the role of computers in the law office. Includes hardware and software. Use of word processors, spreadsheets, databases, computer-assisted legal research, the Internet and electronic mail, and litigation support, case management and bookkeeping/billing software.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F270  Constitutional Law for Paralegals
            3 Credits
Offered Fall
Exploration of constitutional law as it applies to the day-to-day work of a paralegal in criminal law, civil procedure, family law, administrative/employment law and personal injury litigation. Examination of the separation of powers among the branches of the federal government; federalism and the states’ rights; economic and property rights; and individual freedoms and protections under the Constitution, with an emphasis on due process.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F275  Business Organizations
            3 Credits
Offered Fall
Benefits and shortcomings of the three basic business forms: corporation, partnership, and sole proprietorship. How to form each business form, how to operate it according to relevant laws and regulations, and how to dissolve the business.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F280  Legal Research and Writing for Paralegals
            3 Credits
Offered Fall
Legal research skills using law library methods, computer-assisted legal research and the Internet. Read and understand authorities from three branches of government: executive, legislative and judicial. Emphasis on precedent from Alaska and federal court systems. Includes writing skills from drafting of law office correspondence to preparation of court pleadings and briefs.
Prerequisites: PLS F102.
Lecture + Lab + Other: 3 + 0 + 0

PLS F285  Advanced Legal Writing
            2 Credits
Offered Spring
Expand on writing skills previously learned by drafting documents regularly assigned to practicing paralegals. For example, pleadings to be filed in court, legal documents, such as contracts, wills and those used by business organizations, office correspondence, deposition summaries and interoffice legal memorandums.
Prerequisites: PLS F102; PLS F280.
Lecture + Lab + Other: 2 + 0 + 0

PLS F299  Paralegal Studies Internship
            3 Credits
An internship involving a minimum of 150 hours of work under the supervision of an attorney, and, when available, a practicing paralegal for that attorney in a local law office or law-related situation. Must seek approval of faculty advisor for admittance. Note: Students meet as a class only once. All subsequent classes or meetings with UAF faculty advisor are arranged by individual student(s) and advisor.
Prerequisites: Must have completed at least 75% of paralegal studies degree requirements with a minimum 2.8 cumulative GPA or approval of UAF faculty advisor.
Lecture + Lab + Other: 0 + 0 + 10

Petroleum Engineering (PETE)

PETE F101  Fundamentals of Petroleum, Drilling and Production
            3 Credits
Offered Fall and Spring
Fundamental principles of origin, migration, accumulation and exploration of petroleum. Principles of drilling, drilling practices, and drilling fluids. Overview of production practices, surface production equipment. Influence of rock and fluid properties on the principles of petroleum recovery, petroleum transportation. Overview of Alaska unconventional hydrocarbon resources, opportunities and impact on the state economy.
Prerequisites: Freshman standing in Petroleum Engineering program.
Lecture + Lab + Other: 3 + 0 + 0

PETE F301  Reservoir Rock and Fluid Properties
            4 Credits
Offered Fall
Fundamental concepts of reservoir rock and fluid properties including porosity, permeability, fluid saturations, capillary pressure, relative permeabilities, classification of petroleum reservoirs by fluid phase contents, oil, gas and water properties, fluid sampling, and PVT analysis.
Prerequisites: ES F346 (may be taken concurrently); MATH F252X; GEOS F101X or GE F261.
Lecture + Lab + Other: 4 + 0 + 0

PETE F302  Well Logging
            3 Credits
Offered Spring
Comprehensive treatment of modern well logging methods including formation and production logging tools, and techniques and basic concepts of open hole log interpretation.
Prerequisites: PETE F301, PETE F101.
Lecture + Lab + Other: 3 + 0 + 0

PETE F303  Reservoir Rock and Fluid Properties Laboratory (W)
            1 Credit
Offered Spring
Measurement of properties of reservoir rock and reservoir fluids. Determination of porosity, permeability, fluid saturations, capillary pressures, specific gravity density, viscosity, surface tension, PVT properties and interpretation of PVT reports for reservoir fluid samples.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PETE F301.
Lecture + Lab + Other: 0 + 3 + 0
PETE F370  Sedimentology and Structural Geology for Petroleum Engineers  (n)  
4 Credits  
Offered Fall Odd-numbered Years  
Origin and distribution of sedimentary rocks including depositional environments, stratigraphic relationships and structures. Emphasis on the relationship to petroleum occurrences and petroleum exploration. Laboratory exercises on mapping, structural problems and facies relationships in petroleum exploration.  
Prerequisites: GEOS F101X or GE F261.  
Cross-listed with GEOS F370.  
Lecture + Lab + Other: 3 + 3 + 0

PETE F407  Petroleum Production Engineering  
3 Credits  
Offered Fall  
Production system analysis, inflow performance analysis, gas lift design, sucker rod pumping and production decline analysis.  
Prerequisites: PETE F476; ES F341 and ES F346.  
Lecture + Lab + Other: 3 + 0 + 0

PETE F411  Drilling Fluids Laboratory  (W)  
1 Credit  
Offered Spring  
Design, composition and measurement of drilling fluid properties, evaluation of mud activities and chemical treatment of contaminated drilling fluid.  
Prerequisites: PETE F426 (may be taken concurrently); WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.  
Lecture + Lab + Other: 3 + 0 + 0

PETE F421  Applied Reservoir Characterization  
3 Credits  
Offered As Demand Warrants  
Review of reservoir rock properties and their spatial variations; estimation of reserves; introduction to theory and application of geostatistics to reservoir characterization; presentation of fundamental geostatistical concepts including: variogram analysis, estimation variance, kriging and stochastic simulations. Impact of geologic structure on oil recovery. Use of computer software for reservoir characterization and class project.  
Prerequisites: PETE F301; PETE F302; GEOS F370.  
Stacked with PETE F621.  
Lecture + Lab + Other: 3 + 0 + 0

PETE F426  Drilling Engineering  
3 Credits  
Offered Spring  
Principles of drilling, drilling fluids and rheology, drilling problems, drilling hydraulics, well control techniques and casing seat selection.  
Prerequisites: ES F331; ES F341.  
Lecture + Lab + Other: 3 + 0 + 0

PETE F431  Natural Gas Engineering  
2 Credits  
Offered Spring  
Natural gas production and condensate reservoirs. Design of processing, transportation, distribution and flow measurement systems.  
Prerequisites: PETE F301.  
Lecture + Lab + Other: 2 + 0 + 0

PETE F456  Petroleum Evaluation and Economic Decisions  
3 Credits  
Offered Spring  
Economic appraisal methods for oil field developmental project evaluations including risk analysis, probability and statistics in decision making and evaluations. Case studies.  
Prerequisites: MATH F253X; PETE F476.  
Lecture + Lab + Other: 3 + 0 + 0

PETE F458  Petroleum Engineering Internship  
1 Credit  
Offered As Demand Warrants  
Practical experience in a supervised petroleum engineering environment. Participation in professional petroleum operations including drilling, production, formation evaluation, reservoir engineering, petroleum property evaluation, management and economics. Written and oral presentation of technical report describing experience is required. Course may be repeated for up to 4 credits.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 0 + 0 + 1

PETE F466  Petroleum Recovery Methods  
3 Credits  
Offered Fall  
Flow and physicochemical principles of oil recovery by water, chemical, thermal and miscible floods. Prediction of recovery for each of these methods.  
Prerequisites: PETE F301 and PETE F476.  
Lecture + Lab + Other: 3 + 0 + 0

PETE F476  Petroleum Reservoir Engineering  
3 Credits  
Offered Spring  
Quantitative study and prediction of the behavior of oil and gas reservoirs under primary, secondary and tertiary recovery mechanisms.  
Prerequisites: PETE F301; MATH F253X.  
Lecture + Lab + Other: 3 + 0 + 0

PETE F478  Well Test Analysis  
2 Credits  
Offered Spring  
Transient flow of fluids through porous media, application of solutions of the diffusivity equation to pressure buildup, drawdown, interference testing and log-log type curve analysis and effect of reservoir heterogeneities on pressure behavior.  
Prerequisites: PETE F407; PETE F476; MATH F302.  
Lecture + Lab + Other: 2 + 0 + 0

PETE F481  Well Completions and Stimulation Design  (W)  
3 Credits  
Offered Fall  
Design of casing programs, cementing, open-hole and set-through completions, well stimulation; completion and workover fluids; and evaluation of sand control and workover operations.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ES F341; PETE F426.  
Lecture + Lab + Other: 2 + 3 + 0
PETE F476  Advanced Petroleum Geology
3 Credits
Offered Fall Even-numbered Years
Examines the origin of petroleum, the geologic controls of its distribution and accumulation and the basic tools used in exploration and exploitation, including subsurface mapping, well logging and exploration geophysics.
Prerequisites: Graduate standing.
Cross-listed with GEOS F445.
Stacked with GEOS F445.
Offered As Demand Warrants
3 Credits
Offered Fall Even-numbered Years
Economic analysis of petroleum production leading towards increasing cost efficiency in the petroleum and related industries. Qualitative and quantitative description of production forecasts and reserve estimation; oil and gas pricing; cash flow analysis; risk and uncertainty of operation of oil and gas production (financing, debt/equity ratio, depreciation and taxation).
Prerequisites: PETE F407, PETE F456.
Offered As Demand Warrants
3 Credits
Offered As Demand Warrants
Equations for transient flow of single phase fluids through porous media, extension to sample multiphase flow, isolated and developed multi-well flow, conventional drawdown and buildup analysis, log-log type curve analysis, interference testing, fractured wells, pulse tests, and drill stem tests.
Prerequisites: PETE F476; PETE F610.
Offered As Demand Warrants
3 Credits
Offered As Demand Warrants
Secondary and tertiary oil recovery processes, including waterflooding and chemical and thermal recovery methods.
Prerequisites: PETE F476 or PETE F610.
Offered As Demand Warrants
3 Credits
Offered As Demand Warrants
Review of reservoir rock properties and their spatial variations; estimation of reserves; introduction to theory and application of geostatistics to reservoir characterization; presentation of fundamental geostatistical concepts including: variogram analysis, estimation variance, kriging and stochastic simulations. Impact of geologic structure on oil recovery. Use of computer software for reservoir characterization and class project.
Prerequisites: Graduate standing in Petroleum Engineering.
Stacked with PETE F421.
Offered As Demand Warrants
3 Credits
Offered Fall Even-numbered Years
A study of the fundamental concepts and procedures for the design of waterflooding processes in petroleum reservoirs.
Prerequisites: PETE F301; PETE F476.
Offered As Demand Warrants
3 Credits
Offered As Demand Warrants
Two-semester course with emphasis on design and analysis of petroleum exploration, production and reservoir engineering systems by analytical, experimental and computer methods. Identification of requirements, conceptual and detailed project design and cost analysis. Completion of an engineering project.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; senior standing.
Lecture + Lab + Other: 2 + 0 + 0
PETE F487B  Petroleum Project Design
(O, W)
1 Credit
Offered Spring
Two-semester course with emphasis on design and analysis of petroleum exploration, production and reservoir engineering systems by analytical, experimental and computer methods. Identification of requirements, conceptual and detailed project design and cost analysis. Completion of an engineering project.
Prerequisites: Senior standing; PETE F407 or PETE F426; PETE F476.
Lecture + Lab + Other: 2 + 0 + 0
PETE F489  Reservoir Simulation
2 Credits
Offered Fall
The theory and application of computer reservoir simulation in petroleum reservoir and production engineering.
Prerequisites: PETE F476; MATH F310 or ES F301.
Lecture + Lab + Other: 2 + 0 + 0
PETE F600  Flow Assurance in the Petroleum Industry
3 Credits
Offered As Demand Warrants
Study of the thermodynamics of gas hydrates; paraffin waxes; asphaltenes; scale and chemistry of corrosion and erosion processes. Study of chemical and physical methods used for mitigation of solid phase formation. Experimental analysis and modeling of solid phase formation envelopes. Analysis of flow regimes resulting from the presence of solid phases in oil and gas flow lines.
Prerequisites: Permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0
PETE F607  Advanced Production Engineering
3 Credits
Offered As Demand Warrants
Production system analysis, production optimization, downhole equipment design, surface facilities design, oil and gas processing, gas and oil treating systems, disposal well systems, project organization and field development.
Prerequisites: Graduate standing; PETE F407.
Lecture + Lab + Other: 3 + 0 + 0
PETE F608  Advanced Reservoir Engineering
3 Credits
Offered As Demand Warrants
Concepts and tools for solving petroleum reservoir engineering problems; advances in petroleum reservoir engineering. Emphasis on material balance methods and their application to estimate reserves and calculate water influx; diversity equations and solutions; gas and water coning; streamline tracking; and decline curve analysis, productivity index and well performance models for vertical, horizontal and multilateral wells.
Prerequisites: PETE F476.
Lecture + Lab + Other: 3 + 0 + 0
PETE F610  Advanced Reservoir Engineering
3 Credits
Offered As Demand Warrants
Concepts and tools for solving petroleum reservoir engineering problems; advances in petroleum reservoir engineering. Emphasis on material balance methods and their application to estimate reserves and calculate water influx; diversity equations and solutions; gas and water coning; streamline tracking; and decline curve analysis, productivity index and well performance models for vertical, horizontal and multilateral wells.
Prerequisites: PETE F476.
Lecture + Lab + Other: 3 + 0 + 0
### Applied Reservoir Simulation

**PETE F663**  
Applied Reservoir Simulation  
3 Credits  
Offered As Demand Warrants  
Mathematical description of the reservoir, organization of reservoir simulation study, history matching and prediction for several published case studies of reservoir simulations. e.g. PETE F476 or PETE F610.  
**Prerequisites:** Reservoir Engineering course, e.

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### Advanced Phase Behavior

**PETE F665**  
Advanced Phase Behavior  
3 Credits  
Offered As Demand Warrants  
The development and application of phase equilibrium simulators to predict fluid properties for reservoir fluids.  
**Prerequisites:** PETE F301.

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### Drilling Optimization

**PETE F666**  
Drilling Optimization  
3 Credits  
Offered As Demand Warrants  
Principles of drilling optimization: drilling cost analysis and control; rheological properties of drilling fluid for optimum hole cleaning; planning an optimum mud program for vertical, directional and horizontal wells; optimizing bit hydraulics. Use of software packages in optimized hydraulics.  
**Prerequisites:** Graduate standing in engineering discipline.

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### Fluid Flow Through Porous Media

**PETE F670**  
Fluid Flow Through Porous Media  
3 Credits  
Offered As Demand Warrants  
The study of transport phenomena in porous media and application to petroleum engineering.  
**Prerequisites:** PETE F301; PETE F476.

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### Horizontal Well Technology

**PETE F680**  
Horizontal Well Technology  
3 Credits  
Offered As Demand Warrants  
Review of the state of the art of horizontal well technology covering recent advances in drilling and completion of horizontal wells. Emphasis on field practices, reservoir engineering aspects including well testing and well performance estimation, application of horizontal wells to gas and water coning problems as well as enhanced oil recovery.  
**Prerequisites:** PETE F426; PETE F476.

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### Natural Gas Processing and Engineering

**PETE F683**  
Natural Gas Processing and Engineering  
3 Credits  
Offered As Demand Warrants  
Natural gas reservoir engineering and gas production practices. Transient flow of real gases, gas field development, gas well testing, transportation and gas storage reservoirs.  
**Prerequisites:** PETE F431; PETE F476.

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### Non-Newtonian Fluid Mechanics

**PETE F685**  
Non-Newtonian Fluid Mechanics  
3 Credits  
Offered As Demand Warrants  
Characteristics of stress in fluids, flow models of non-Newtonian fluids (Bingham plastic fluids, fluids without yield stress), couette flow analysis of non-Newtonian fluids, surge and sabw pressure models for plugged and open-end pipes.  
**Prerequisites:** ES F341; PETE F426.

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### Experimental and Data Analytics Methods in Petroleum Engineering

**PETE F687**  
Experimental and Data Analytics Methods in Petroleum Engineering  
3 Credits  
Offered As Demand Warrants  
Application of statistical methods to develop empirical models in petroleum engineering. Topics covered included dimensional analysis, fundamental statistical concepts, regression analysis, neural networks, time series analysis and analysis of factorial and fractional factorial designed experiments.  
**Prerequisites:** Graduate standing.

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### Multiphase Fluid Flow in Pipes

**PETE F689**  
Multiphase Fluid Flow in Pipes  
3 Credits  
Offered As Demand Warrants  
Multiphase flow in pipes, modeling of fluid flow of complex mixtures in pipes, empirical correlations developed in the literature, and calculation of pressure gradients and flow rates during the flow of multiphase fluids through vertical, inclined and horizontal pipes.  
**Prerequisites:** ES F341; MATH F310 or ES F301; PETE F407.

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### Seminar

**PETE F692**  
Seminar  
1-3 Credits  
Offered As Demand Warrants  

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**PETE F692P**  
Seminar  
1-3 Credits  
Offered As Demand Warrants  

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### Non-thesis Research/Project

**PETE F698**  
Non-thesis Research/Project  
1-9 Credits  
Offered As Demand Warrants  

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### Thesis

**PETE F699**  
Thesis  
1-9 Credits  
Offered As Demand Warrants  

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### Philosophy (PHIL)

**PHIL F102X**  
Introduction to Philosophy  
(h)  
3 Credits  
Survey of philosophers and problems in the Western tradition beginning with the ancient Greeks (Plato, Aristotle) and continuing with medieval (Anselm, Augustine, Aquinas) and modern European thinkers (Descartes, Hume, Kant, Nietzsche). Themes and topics may vary.  
**Attributes:** UAF GER Humanities Req

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**PHIL F104X**  
Logic and Reasoning  
(h)  
3 Credits  
Offered Fall  
Principles of deductive and inductive logic and application of the principles to critical thinking in logic and its application.  
**Attributes:** UAF GER Humanities Req

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**PHIL F108**  
Critical and Quantitative Thinking  
(h)  
3 Credits  
Offered Spring  
Examines the difference between quantifiable scientific thinking and unquantifiable pseudoscientific thinking, making use of the tools of formal logic, math and general critical thinking. Examples are drawn from contemporary, controversial issues.  
**Attributes:** UAF GER Humanities Req

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PHIL F322X Ethics (h) 3 Credits
"Ethic,"—from the Greek “ethos” meaning character, custom, usage—is the study of value distinctions. Examination of the nature of value judgments—their historical origins and philosophical assumptions—and exploration of the application of value distinctions to contemporary social, religious and scientific/technical. Recommended but not required: Two courses in the Perspectives on the Human Condition baccalaureate core.
Prerequisites: Placement in WRTG F111X; junior standing.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

PHIL F341 Theories of Knowledge (0, h) 3 Credits
Offered Fall Even-numbered Years
The nature of knowledge, truth and certainty.
Prerequisites: COJO F131X or COJO F141X; PHIL F102X.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F342 Theories of Reality (h) 3 Credits
Offered Spring Even-numbered Years
Theories of reality and their relationship to science, philosophy and religion.
Prerequisites: PHIL F102X.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F351 History of Ancient Greek Philosophy (h) 3 Credits
Offered Fall
Review of the philosophy of Plato and Aristotle; minor attention to Presocratics.
Prerequisites: PHIL F102X.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F352 History of Modern Philosophy: Descartes to Kant (h) 3 Credits
Offered Spring
Review of continental rationalist and British empiricist thought, 17th-19th centuries.
Prerequisites: PHIL F102X.
Recommended: PHIL F351.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F353 Survey of Buddhist Thought (h) 3 Credits
Offered As Demand Warrants
Survey of the major themes and schools of Buddhist thought. Emphasis on the interactions with surrounding cultures and competing philosophical systems. Includes modern developments in India, China, Japan, Tibet and other parts of Asia.
Prerequisites: Upper class standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F361 Philosophy in Literature (h) 3 Credits
Offered As Demand Warrants
Examination of philosophical issues in literary works. Topics include the nature of free will, the effects of choice in building a character, the desirable (and undesirable) ways of confronting morality, and the nature of evil. Topics and readings vary.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F362 Feminist Philosophy (h) 3 Credits
Offered As Demand Warrants
Examination of contemporary feminist philosophical positions. Emphasis on feminist ethics, social and political philosophy, and epistemology.
Cross-listed with WGS F362.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F363 Philosophy of Religion (W, h) 3 Credits
Offered As Demand Warrants
Introduction to topics such as arguments for the existence and nature of God, the problem of evil, the relation of faith and reason, religious language and the connection of religion to the meaning of life.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Recommended: PHIL F102X; upper-division status.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F381 Topics in Logics (h) 3 Credits
Offered As Demand Warrants
An advanced explanation of problems, philosophies and approaches in logics, including classical, symbolic and comparative logics.
Prerequisites: PHIL F104X or equivalent; permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F402 Biomedical and Research Ethics (W, h) 3 Credits
Offered Fall
Issues in biomedical ethics. Topics will vary but include discussion of moral principles and problems of research ethics and medical ethics, such as: animal and human experimentation; data management; informed consent; therapeutic and non-therapeutic research; physician/patient relationship; autonomy; assisted reproductive technologies; euthanasia; organ transplantation; and allocation of scarce medical resources.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior or senior standing; a course in philosophy, science, or nursing; permission of instructor.
Recommended: A course in philosophy, science or nursing.
Cross-listed with BIOL F402.
Lecture + Lab + Other: 3 + 0 + 0
PHIL F411   Classical Political Theory  (O, W, h)  
3 Credits  
Offered Fall Odd-numbered Years  
Prerequisites: COJO F131X or COJO F141X; WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHIL F102X; PS F101X.  
Cross-listed with PS F411.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F412   Modern Political Theory  (W, s)  
3 Credits  
Offered Spring Even-numbered Years  
Political ideas from the Renaissance to the modern world. Theories of Machiavelli, Hobbes, Locke, Rousseau, Burke, Marx and Lenin.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHIL F102X; PS F101X.  
Cross-listed with PS F412.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F414   Contemporary Political Philosophy  
3 Credits  
Offered Spring Even-numbered Years  
This course takes stock of recent currents in contemporary political thought, including readings from Carl Schmitt, Hannah Arendt, Frantz Fanon, John Rawls, Leo Strauss, Michel Foucault, and Theodor Adorno. We ask how these canonical thinkers influence feminist, environmental, postcolonial, anti-essentialist, democratic and post-human political theory today.  
Prerequisites: PS F101X, upper division standing.  
Cross-listed with PS F414.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F421   Aesthetics  (h)  
3 Credits  
Offered Fall Odd-numbered Years  
The nature of aesthetic experience in poetry, music, painting, sculpture, architecture and other arts; studies in relation to artistic production and the role of art in society.  
Prerequisites: Junior/senior standing.  
Recommended: PHIL F102X or HUM F201X.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F436   Ethical Theory  (h)  
3 Credits  
Major ethical theories. Includes virtue theory, social contract theory, deontology and utilitarianism with major arguments for and against.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F472   Ethics in International Affairs  (h)  
3 Credits  
Offered Spring Odd-numbered Years  
Examination of questions including: What is in the interest of the nation-state according to the logic of statecraft? How does the national interest relate to broader human interest? How does morality relate to the international legal order? Examination is through theory and case studies.  
Prerequisites: PHIL F322X or PS F221X.  
Cross-listed with PS F472.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F481   Philosophy of Science  (h)  
3 Credits  
Offered As Demand Warrants  
Comparison and discussion of various contemporary methodological positions.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F482   Comparative Philosophy and Religions  (h)  
3 Credits  
Offered As Demand Warrants  
Review of non-western philosophical thought, e.g., African, Jewish, Latin American, Oriental and others.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F485   Topics in Comparative Philosophies  (h)  
3 Credits  
Explores, on an advanced level, modern and traditional philosophical questions, problems, and approaches to and within different cultural settings. Student should have at least an acquaintance with a second language and some multicultural experience.  
Prerequisites: Nine credits in philosophy.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F487   Conceptual Issues in Evolutionary Biology  
3 Credits  
Offered Spring Odd-numbered Years  
Analysis of some of the main models which explain evolutionary change, followed by consideration of the practical implications these models have on the study of biological phenomena in general.  
Cross-listed with BIOL F487.  
Stacked with BIOL F687; PHIL F687.  
Lecture + Lab + Other: 3 + 0 + 0  

PHIL F499   B.A. Thesis in Philosophy  (W, h)  
3 Credits  
Offered As Demand Warrants  
Writing the senior thesis in philosophy.  
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
Lecture + Lab + Other: 1 + 2 + 0  

PHIL F687   Conceptual Issues in Evolutionary Biology  
3 Credits  
Offered Spring Odd-numbered Years  
Analysis of some of the main models which explain evolutionary change, followed by consideration of the practical implications these models have on the study of biological phenomena in general.  
Cross-listed with BIOL F687.  
Stacked with BIOL F487; PHIL F487.  
Lecture + Lab + Other: 3 + 0 + 0
Physics (PHYS)

PHYS F102X  Energy and Society  (n)
4 Credits
Offered Spring
Exploring the concept of energy. Investigation of the sources, conversion, distribution and ultimate dispersion of energy, as well as the consequences of its use in the development and maintenance of modern society. May be used to fulfill part of the natural science requirement. Designed for non-science majors.
Prerequisites: Placement in WRTG F111X; placement in DEVFM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F103X  College Physics I  (n)
4 Credits
Offered Fall
Classical physics including vectors, kinematics, Newton's Laws, momentum, work, energy, rotational motion, oscillations, waves, gravity, fluids, heat, temperature, laws of thermodynamics and kinetic theory. For mathematics, science and liberal arts majors.
Prerequisites: High school algebra, trigonometry and geometry; placement in WRTG F111X; placement in DEVFM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F104X  College Physics II  (n)
4 Credits
Offered Spring
Classical physics including vectors, kinematics, Newton's Laws, momentum, work, energy, rotational motion, oscillations, waves, gravity, fluids, heat, temperature, laws of thermodynamics and kinetic theory. For mathematics, science and liberal arts majors.
Prerequisites: PHYS F103X; placement in WRTG F111X; placement in DEVFM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F115X  Physical Sciences  (n)
4 Credits
Offered Spring
Basic concepts and general overview in physics. Presents interrelatedness and interdependence within this scientific field.
Prerequisites: Placement in WRTG F111X; placement in DEVFM F105.
Recommended: DEVFM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F175X  Introduction to Astronomy  (n)
4 Credits
Offered Fall
Examination of the science of astronomy and its social consequences, with an emphasis on the interrelationships between astronomy and other sciences. Topics covered: astronomical concepts and tools, the solar system, stellar astronomy and cosmology. Designed for non-science majors.
Prerequisites: Placement in WRTG F111X; placement DEVFM F105.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F211X  General Physics I  (n)
4 Credits
Vectors, kinematics, Newton's Laws, momentum, work, energy, rotational motion, oscillations, waves, gravity and fluids. For engineering, mathematics and physical science majors.
Prerequisites: Concurrent enrollment in MATH F252X; placement in WRTG F111X.
Recommended: One year of high school physics.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F212X  General Physics II  (n)
4 Credits
Heat, temperature, laws of thermodynamics, Coulomb's Law, electrical potential, capacitance, Kirchoff's Laws, Biot-Savart Law, Faraday's Law, and electromagnetic waves. For engineering, mathematics and physical science majors.
Prerequisites: Concurrent enrollment in MATH F253X; PHYS F211X or ES F208 or concurrent enrollment in ES F210; placement in WRTG F111X.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F213X  Elementary Modern Physics  (n)
4 Credits
Offered Fall
Geometrical and physical optics, elementary-level modern physics including special relativity, atomic physics, nuclear physics, solid-state physics, elementary particles, simple transport theory, kinetic theory and concepts of wave mechanics.
Prerequisites: Placement in WRTG F111X; MATH F252X; MATH F253X; PHYS F211X; PHYS F212X.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F220  Introduction to Computational Physics  (n)
4 Credits
Offered Spring
Introduction to computational techniques for solving physics problems. The computer is used as a tool to provide insight into physical systems and their behavior in all areas of physics.
Prerequisites: MATH F253X; PHYS F211X; PHYS F212X; PHYS F213X.
Lecture + Lab + Other: 3 + 3 + 0

PHYS F301  Introduction to Mathematical Physics  
4 Credits
Offered Spring
Introduction to theoretical foundations of classical and modern physics. Includes calculus of vector fields, linear algebra and elementary tensor theory, complex analysis, ordinary linear differential equations, partial differential equations, Fourier analysis and probability. Physical applications include planetary motion, rotating bodies and inertia tensor, damped and driven harmonic oscillator, wave equation, Schroedinger's equation and diffusive systems.
Prerequisites: PHYS F211X; PHYS F212X; PHYS F213X; MATH F253X.
Lecture + Lab + Other: 4 + 0 + 0

PHYS F341  Classical Physics I: Particle Mechanics  
4 Credits
Offered Fall
Newtonian mechanics, conserved mechanical quantities, motion of systems of particles, rigid body statics and dynamics, moving and accelerated coordinate systems, rigid body rotations and Lagrangian mechanics.
Prerequisites: PHYS F211X; PHYS F212X; PHYS F220; PHYS F301.
Lecture + Lab + Other: 4 + 0 + 0
PHYS F342  Classical Physics II: Electricity and Magnetism  4 Credits
Offered Spring
Statics and dynamics of electric and magnetic fields in vacuum and in the presence of materials. Lorentz force law. Maxwell's equations.
Prerequisites: PHYS F341.
Lecture + Lab + Other: 4 + 0 + 0

PHYS F343  Classical Physics III: Vibration and Waves  4 Credits
Offered Fall
Normal modes and small vibrations, continuum systems, wave mechanics, electromagnetic waves and radiation. Relativistic mechanics and electromagnetism.
Prerequisites: PHYS F342.
Lecture + Lab + Other: 4 + 0 + 0

PHYS F351  Thermal Physics  2 Credits
Offered Spring
Classical macroscopic thermodynamics; systems and states, equations of state, the first and second laws of thermodynamics and their consequences, entropy, enthalpy, Helmholtz and Gibbs functions, equilibrium, Maxwell's relations.
Prerequisites: PHYS F212X, PHYS F220, PHYS F301, PHYS F341.
Lecture + Lab + Other: 2 + 0 + 0

PHYS F381  Physics Laboratory  (O, W, n)  3 Credits
Offered Fall
Laboratory experiments in classical and modern physics.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHYS F213X.
Lecture + Lab + Other: 1 + 6 + 0

PHYS F382  Physics Laboratory  (W, n)  3 Credits
Offered Spring
Laboratory experiments in classical and modern physics.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHYS F381.
Lecture + Lab + Other: 1 + 6 + 0

PHYS F400  Capstone Project  0 Credit
This course should be taken by students during the semester they initiate a capstone research project. The capstone project must include the evaluation of data and communication of the study intent, methods, results, interpretation and conclusion in the context of existing literature and knowledge. The capstone project may be completed as individual undergraduate research with a faculty member, as independent study with a faculty member within any 300 or 400 level physics course, or as participation in the international University Physics Competition. The duration of the course may exceed one semester.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 0 + 0 + 0

PHYS F413  Atmospheric Radiation  3 Credits
Offered Fall Odd-numbered Years
Fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds, and radiation climatology.
Prerequisites: ATM F401 (may be taken concurrently).
Cross-listed with ATM F413.
Stacked with PHYS F613, ATM F613.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F421  Quantum Mechanics  (n)  4 Credits
Offered Fall
Schrodinger's equation, Born interpretation, operator formalism, measurement and projection, stationary states, one-dimensional systems, hydrogen atom, states of definite angular momentum, perturbation theory.
Prerequisites: PHYS F213X; PHYS F220; PHYS F301; PHYS F341.
Lecture + Lab + Other: 4 + 0 + 0

PHYS F451  Statistical Physics  2 Credits
Offered Spring
The canonical ensemble; maximizing entropy, the partition function and Helmholtz free energy, the harmonic oscillator, Einstein and Debye solids, classical systems and the ideal gas, diatomic molecules, equipartition theorem, the photon gas and the blackbody spectrum, the grand canonical ensemble, quantum statistics, Fermion and Boson systems.
Prerequisites: PHYS F342, F351, F421.
Lecture + Lab + Other: 2 + 0 + 0

PHYS F462  Geometrical and Physical Optics  (n)  4 Credits
Offered Spring
Geometrical optics, interference and diffraction theory, nonlinear optics, Fourier optics, and coherent wave theory.
Prerequisites: PHYS F213X; PHYS F301.
Lecture + Lab + Other: 3 + 3 + 0

PHYS F471A  Advanced Topics in Physics I: Condensed Matter Physics  I  (n)  1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471B  Advanced Topics in Physics I: Condensed Matter Physics  II  (n)  1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0
PHYS F471C Advanced Topics in Physics I: Space and Auroral Physics (n)
1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471D Advanced Topics in Physics I: Nonlinear Dynamics (n)
1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471E Advanced Topics in Physics I: Biophysics (n)
1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471F Advanced Topics in Physics I: Nuclear and Particle Physics (n)
1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471G Advanced Topics in Physics I: General Relativity (n)
1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471H Advanced Topics in Physics I: Astrophysics (n)
1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471I Advanced Topics in Physics I: Topics in Modern Mathematical Physics (n)
1 Credit
Emphasis topics provide increased breadth in basic physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F471J Advanced Topics in Physics I: Order of Magnitude Physics
1 Credit
Offered Fall and Spring
By avoiding mathematical complexity, order-of-magnitude techniques increase our physical understanding and allow us to study difficult or intractable problems. Students will learn how to do so and apply these techniques to problems in fluid mechanics, biophysics, astrophysics, and/or other applications.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472A Advanced Topics in Physics II: Planetary Atmospheres (n)
1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472B Advanced Topics in Physics II: Fluid Dynamics (n)
1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472C Advanced Topics in Physics II: Plasma Physics (n)
1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472D Advanced Topics in Physics II: Hamiltonian Mechanics (n)
1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472E Advanced Topics in Physics II: Physics of Glaciers (n, a)
1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472F Advanced Topics in Physics II: Remote Sensing (n)
1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0
PHYS F472G  Advanced Topics in Physics II: Solar Physics  (n) 1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472H  Advanced Topics in Physics II: Advanced Laboratory  (n) 1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472I  Advanced Topics in Physics II: Spectroscopy  (n) 1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472J  Advanced Topics in Physics II: Cosmology  (n) 1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472K  Advanced Topics in Physics II: Quantum Computation  (n) 1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472L  Advanced Topics in Physics II: Covariant Kinematics/Dynamics  (n) 1 Credit
Application topics provide expanded exposure to subjects in physics. Three topics are offered within the fall and spring semesters of each academic year as compressed 14-lecture, one-credit courses.
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472Z  Advanced Topics in Physics II: Current Topics in Physics  1 Credit
Offered as Demand Warrants
The advanced topics modules provide expanded exposure to modern subjects in physics. Three topics are offered each semester, providing breadth beyond the core subjects of the physics undergraduate curriculum. This course will present most current material from one particular topic in physics, to be determined at the time of the offering. Students are expected to have familiarity with the core subjects in the field (classical mechanics, electromagnetism, statistical physics, quantum mechanics.)
Prerequisites: PHYS F220; PHYS F301.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F488  Undergraduate Research  1-3 Credits
Advanced research topics from outside the usual undergraduate requirements.
Prerequisites: Permission of instructor.
Recommended: A substantial level of technical/scientific background.
Lecture + Lab + Other: 0 + 0 + 0

PHYS F605  Physics Teaching Seminar/Practicum  1 Credit
Offered Fall and Spring
This course will give science graduate students both lectures and hands-on training in dealing with all aspects of teaching, focused on but not exclusive to the Teaching Assistant level. Course topics include teaching pedagogy, preparation strategies, student management, time management and learning assessment.
Prerequisites: Graduate standing in a science discipline.
Lecture + Lab + Other: 1 + 0 + 1

PHYS F608  Core Skills for Computational Science  3 Credits
Offered Fall
This course provides students of computational sciences, an introduction to the basic skills required to operate in the modern high performance computing (HPC) environment offered at the Arctic Regional Supercomputing Center (ARSC). Topics include an introduction to HPC, basic Unix/batch scripting skills, performance programming, shared and distributed memory parallelism, code validation and debugging, data storage and management and data visualization. Each of these topics will be presented in lecture form. To provide additional applied knowledge, either a thorough case study by a guest speaker and/or a hands-on lab session will be given in support of each. Graduate standing in physical sciences, experience with FORTRAN or C programming language.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F611  Mathematical Physics I  3 Credits
Offered Fall
Mathematical tools and theory for classical and modern physics. Core topics: Linear algebra including eigenvalues, eigenvectors and inner products in finite dimensional spaces. Infinite series. Hilbert spaces and generalized functions. Complex analysis, including Laurent series and contour methods. Applications to problems arising in physics. Selected additional topics, which may include operator and spectral theory, groups, tensor fields, hypercomplex numbers.
Prerequisites: MATH F302; MATH F314; MATH F421; MATH F422.
Cross-listed with MATH F611.
Lecture + Lab + Other: 3 + 0 + 0
PHYS F612 Mathematical Physics II  
3 Credits  
Offered Spring  
Prerequisites: PHYS F611 or MATH F611. 
Cross-listed with MATH F612. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F613 Atmospheric Radiation  
3 Credits  
Offered Fall Odd-numbered Years  
Fundamentals of blackbody radiation theory and radiative properties of atmospheric constituents. Discussion of gaseous absorption including line absorption, broadening effects and radiative transfer. Includes scattering, radiative properties of clouds, and radiation climatology. 
Prerequisites: ATM F601 (may be taken concurrently); graduate standing. 
Cross-listed with ATM F613. 
Stacked with PHYS F413 and ATM F413. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F614 Ice Physics (a)  
3 Credits  
Offered Spring Even-numbered Years  
A survey of the physics of ice. Topics will include the crystal structure and properties of ice, high pressure phases, hydrogen bonding, mechanical, thermal, electrical and acoustic properties, nucleation and growth, and optical and surface properties (adhesion, friction). 
Prerequisites: MATH F421; MATH F422; graduate standing. 
Cross-listed with GEOS F614. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F621 Classical Mechanics  
3 Credits  
Offered Fall Odd-numbered Years  
Lagrang's equations, two-body problem, rigid body motion, special relativity, canonical equations, transformation theory, and Hamilton-Jacobi method. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F622 Statistical Mechanics  
3 Credits  
Offered Spring Even-numbered Years  
Classical and quantum statistics of independent particles, ensemble theory and applications. 
Prerequisites: PHYS F621; graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F625 Inverse Problems and Parameter Estimation  
3 Credits  
Offered Spring Odd-numbered Years  
An inverse problem uses observations to infer properties of an unknown physical model. One example is how seismometer recordings can be used to infer the location of an earthquake. This course covers inverse theory and methods for solving inverse problems, including numerous examples arising in the natural sciences. Topics include linear regression, method of least squares, discrete ill-posed inverse problems, estimation of uncertainties, iterative optimization, and probabilistic (Bayesian) and sampling approaches. Assignments and computational laboratory exercises require familiarity with linear algebra and computational tools such as Matlab. 
Prerequisites: MATH F253X; MATH F314. 
Cross-listed with GEOS F627. 
Lecture + Lab + Other: 2 + 3 + 0  

PHYS F626 Fundamentals of Plasma Physics  
3 Credits  
Offered Fall  
Single charge particle motion in the electromagnetic fields, plasma kinetic theory, Vlasov equations for collisionless plasmas, magnetohydrodynamic equations, linear plasma waves and instabilities, nonlinear plasma waves and instabilities. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F627 Advanced Plasma Physics  
3 Credits  
Offered Spring  
Vlasov description of small amplitude waves in magnetized plasmas, advanced particle orbit theory, fluctuation and incoherent scattering theory, plasma discontinuities and collisionless shocks, weak turbulent theory, statistical theory of turbulence. 
Prerequisites: PHYS F626; graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F628 Digital Time Series Analysis  
3 Credits  
Offered Spring Even-numbered Years  
Applied time series analysis, including correlation, convolution, filtering and spectral estimation of multivariate data. The statistical properties of estimators; signal detection; and array processing. 
Prerequisites: MATH F401; familiarity with a programming language such as C or Fortran; graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F629 Methods of Numerical Simulation in Fluids and Plasma  
3 Credits  
Offered Spring Odd-numbered Years  
The fundamentals of computer simulation for fluids and multi-particle systems. Topics include methods for the discretization of numerical solutions, and boundary and initial conditions. Methods will be applied to convection, diffusion, and steady states in fluids and plasmas. 
Prerequisites: Experience in programming; graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F631 Electromagnetic Theory  
3 Credits  
Offered Fall Even-numbered Years  
Electrostatics, magnetostatics, Maxwell's equations, and potentials. Lorentz equations, field energy, gauge conditions, retarded potentials, waves, radiation and tensor formulations. 
Prerequisites: Graduate standing. 
Lecture + Lab + Other: 3 + 0 + 0
PHYS F632 Electromagnetic Theory
3 Credits
Offered Spring Odd-numbered Years
Electrostatics, magnetostatics, Maxwell’s equations and potentials. Lorentz equations, field energy, gauge conditions, retarded potentials, waves, radiation and tensor formulations.
Prerequisites: PHYS F631; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F639 InSar and Its Applications
3 Credits
Offered As Demand Warrants
Introduction to the concepts of repeat-pass spaceborne SAR interferometry. Practical use of the technique to derive displacements of the solid earth, glaciers and ice sheets to a precision of a few centimeters and accurate digital elevation models of the Earth’s surface.
Prerequisites: Basic remote sensing course.
Cross-listed with GEOS F639.
Lecture + Lab + Other: 2 + 2 + 0

PHYS F640 Auroral Physics (a)
3 Credits
Offered Spring Odd-numbered Years
Survey of aurora phenomena, the associated physical processes, and techniques used to investigate the aurora. Includes electron and proton impact spectra; physical processes that accelerate electrons and protons; auroral currents; ionospheric effects of auroral activity; and principles for ground-based satellite spectroscopy and imaging and the measurements of magnetic and electric fields.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F647 Fundamentals of Geophysical Fluid Dynamics
3 Credits
Offered Fall Odd-numbered Years
Introduction to the mechanics of fluid systems, the fundamental processes, Navier-Stokes’ equations in rotating and stratified fluids, kinematics, conservation laws, vortex motion, irrotational flow, laminar flow, boundary layer phenomena, waves, instabilities, turbulent flows and mixing.
Prerequisites: Graduate standing.
Cross-listed with ATM F647.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F648 Nonlinear Dynamics
3 Credits
Offered Spring Even-numbered Years
Introduction into the dynamics of nonlinear systems. Continuous and discrete dynamical systems, stability analysis, bifurcations, limit cycle, chaos and strange attractors, fractals and dimension algorithms, controlling chaos, synchronization processes, and stochastic dynamical systems.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F650 Aeronomy
3 Credits
Offered Fall Even-numbered Years
The physical and chemical processes that govern the response of planetary atmospheres to solar radiation and energetic particles. Formation of and characteristic processes in the layers within the ionosphere and basic magneto-ionic theory. Includes principles of remote sensing by lidar and radar techniques.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F651 Quantum Mechanics
3 Credits
Offered Fall Even-numbered Years
Schrödinger’s equations, operator formalism, correspondence principle, central force problems, perturbation theory, quantum statistical mechanics, and applications of quantum mechanics to collision problems, radiation and spectroscopy.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F652 Quantum Mechanics
3 Credits
Offered Spring Odd-numbered Years
Schrödinger’s equations, operator formalism, correspondence principle, central force problems, perturbation theory, quantum statistical mechanics, and applications of quantum mechanics to collision problems, radiation and spectroscopy.
Prerequisites: PHYS F651; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F672 Magnetospheric Physics
3 Credits
Offered Spring Even-numbered Years
The physics and dynamics of Earth’s magnetosphere. Discusses the magnetosphere as a test bed for microscopic plasma processes equilibrium configurations, plasma instabilities, highly nonlinear eruptive plasma processes, and global dynamics which involve the interaction of various regions of the magnetosphere. Introduction to various aspects of magnetospheric physics with a systematic discussion of the various elements of the magnetosphere, their structure and dynamics, and a discussion of the relevant plasma physics.
Prerequisites: PHYS F626; graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F673 Space Physics
3 Credits
Offered Alternate Fall Odd-numbered Years
Plasma physics of the heliosphere from the solar core to the interstellar medium. Includes coronal structure, interplanetary magnetic field and solar wind, shocks, interactions with planets, planetary magnetospheres, cosmic rays, solar-terrestrial relations and instrumentation.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F692P Seminar
1 Credit
Lecture + Lab + Other: 0 + 0 + 0

PHYS F698 Non-thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

PHYS F699 Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0
Political Science (PS)

PS F100X Political Economy (s)
3 Credits
Evolution and operation of the American domestic political economy with
consideration of market failures and government responses. Review of
major issues in political economy such as inflation, poverty and budget
deficits. Exploration of linkages between American and global systems.
Prerequisites: Placement in WRTG F111X.
Attributes: UAF Core Political Economy, UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

PS F101X Introduction to American Government and Politics (s)
3 Credits
This is a broad survey course that exposes students to the key theories,
methods and data used to describe and explain the U.S. political system.
We examine the principles of governance, institutions and practices of
American national government; the Constitution, federalism, interest
groups, parties, public opinion and elections.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

PS F201X Comparative Politics (s)
3 Credits
Offered Fall
Introduction to the systematic study of government and politics in
countries other than the U.S. Students will explore such questions as why
some countries are democracies and other countries dictatorships; why
some remain stable and peaceful, while others seem in constant turmoil.
This is a prerequisite for other courses in comparative politics.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

PS F202 Democracy and Global Society (s)
3 Credits
Offered Spring Even-numbered Years
Examination of the various definitions and types of democracy and the
global contexts within which they develop. Cases used draw from a
wide range of states, societies and world-historical contexts, and allow
comparisons among developed and developing countries.
Lecture + Lab + Other: 3 + 0 + 0

PS F205 Leadership, Citizenship and Choice
3 Credits
Offered Spring
History of democratic principles in America and how people can
contribute to political and community life in the local, state and national
arenas, as leaders and citizens. Examines ethical dilemmas of leadership,
and political and social issues facing Alaska and American societies.
Course includes an experiential learning component.
Cross-listed with ACNS F205.
Lecture + Lab + Other: 3 + 0 + 0

PS F212 Introduction to Public Administration (s)
3 Credits
Offered As Demand Warrants
Theories and practice of public administration, especially as applied to
federal agencies. Study of organization, planning and decision making in
implementing public policy.
Lecture + Lab + Other: 3 + 0 + 0

PS F211X International Politics (s)
3 Credits
Offered Fall
Introduction to the problems, literature, theory and terminology of
international relations. Provides a basis for understanding current
international events and introduces the three subfields of international
relations: international security, international political economy and
international organization. Examines relations between nations, regions
and groups, as well as ideas of conflict, security, trade, technology,
negotiation, cooperation, revolution, modernization and community.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

PS F222 Political Science Research Methods (s)
3 Credits
Offered Spring Even-numbered Years
Familiarizes students with the research methods that have been used to
produce political knowledge about significant political phenomena.
Includes both qualitative and quantitative research methods.
Prerequisites: PS F101X; must be completed before a student advances
to senior standing in the discipline.
Lecture + Lab + Other: 3 + 0 + 0

PS F263 Alaska Native Politics (s, a)
3 Credits
Offered Spring Odd-numbered Years
Political development, organization, interests and activities of Alaska
Natives; treatment of ethnic leadership issues, history of federal Indian
policy, evolution of Native leadership, village and regional government,
land claims, and community politics from the Alaska Native brotherhood
to ANCSA to the Alaska Native Coalition. Compares Alaska Native
political developments to those of other circumpolar Northern Native
communities.
Lecture + Lab + Other: 3 + 0 + 0

PS F300X Ethics and Society (h)
3 Credits
What is the right thing to do? A presentation of important theories of
values, morality and ethics. Application of theories to dilemmas of choice
in the public world, such as euthanasia, abortion, animal rights, sexual
morality and environmental ethics.
Prerequisites: Placement in WRTG F111X; junior standing.
Recommended: Two courses in the Perspectives on the Human Condition
baccalaureate core.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

PS F301 American Presidency (s)
3 Credits
Offered Fall Even-numbered Years
The institution of the presidency in the American political system.
Prerequisites: PS F101X.
Lecture + Lab + Other: 3 + 0 + 0

PS F302 Congress and Public Policy (s)
3 Credits
Offered Spring Odd-numbered Years
The American Congress in the political system.
Prerequisites: PS F101X.
Lecture + Lab + Other: 3 + 0 + 0
PS F303  Politics and the Judicial Process  (s)  3 Credits
Offered Fall
The role of federal courts as political institutions. The politics of judicial selection, the nature of judicial decision-making and intracourt politics, litigations as a policy making device, changes in the nature and scope of judicial power, governmental attorneys, the legal bureaucracy, and judicial agenda setting.
Prerequisites: PS F101X.
Lecture + Lab + Other: 3 + 0 + 0

PS F304  International Security  (s)  3 Credits
Offered Fall Even-numbered Years
Introduction to the major challenges of maintaining a peaceful and secure world. Considers the major threats to our security and how they are managed. Analyzes political, institutional, cultural, moral and legal norms surrounding war and other security concerns and different means of organizing for peace and security.
Prerequisites: PS F221X.
Lecture + Lab + Other: 3 + 0 + 0

PS F314  Political Ideologies  (W, s)  3 Credits
Offered Fall Even-numbered Years
An examination of the purpose of ideology as an orienting set of political ideas with mass appeal. Analysis of 20th century ideologies, including anarchism, communism, liberalism, socialism, environmentalism and feminism.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F101X.
Lecture + Lab + Other: 3 + 0 + 0

PS F315  American Political Thought  (s)  3 Credits
Offered Spring Odd-numbered Years
Political ideas in the U.S. from colonial times to the present: Puritanism, revolutionary ideas, Constitutionalism, nature of the Union, Progressive movement and pragmatism.
Prerequisites: PS F101X.
Recommended: HIST F131; HIST F132X.
Lecture + Lab + Other: 3 + 0 + 0

PS F322  International Law and Organization  (O, s)  3 Credits
Offered Spring Odd-numbered Years
Case studies in international law (rights and duties of states, jurisdiction and sovereignty, treaties, use of force and adjudication processes); development of regional organizations and integration; the United Nations.
Prerequisites: COJO F131X or COJO F141X; PS F221X.
Lecture + Lab + Other: 3 + 0 + 0

PS F323  International Political Economy  (s)  3 Credits
Offered Alternate Spring Odd-numbered Years
Exploration of the manner in which political and economic forces interact to affect international flows of goods, money, investments and technology. International political economic relations are examined in several contexts.
Prerequisites: PS F100X.
Lecture + Lab + Other: 3 + 0 + 0

PS F325  Native Self-government  (s, a)  3 Credits
Offered Spring Odd-numbered Years
Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance under federal Indian law and Alaska state-chartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people.
Prerequisites: One or more of the following: HIST F110, PS F263, TM F201.
Cross-listed with ANS F325.
Lecture + Lab + Other: 3 + 0 + 0

PS F340  Gender, Sex and Politics  (s)  3 Credits
Offered Spring Odd-numbered Years
In-depth examination of the relevance of gender in political thought and action. Topics vary and may include: an historical perspective of political ideas on the nature and status of women; women's involvement in national and/or international political movements and organizations; feminist approaches to the social sciences; feminism as a political ideology.
Prerequisites: One political science course.
Recommended: WGS F201X.
Cross-listed with WGS F340.
Lecture + Lab + Other: 3 + 0 + 0

PS F401  Political Behavior  (W, s)  3 Credits
Offered Spring Even-numbered Years
Attitudes, opinions and beliefs of the American electorate and the impact of these factors on political behavior; role of political organizations (parties and interest groups) in modern American politics.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X.
Lecture + Lab + Other: 3 + 0 + 0

PS F403  Public Policy  (O, W, s)  3 Credits
Offered Spring Even-numbered Years
The processes of policy development, implementation, and change are analyzed with major policy frameworks and models used in contemporary political science. These frameworks and models will be applied to environmental sustainability and other social policy issues. Students will develop expertise in a specific policy area and complete oral presentations related to their policy interests.
Prerequisites: PS F101X, upper division standing.
Stacked with PS F603; ACNS F603.
Lecture + Lab + Other: 3 + 0 + 0

PS F411  Classical Political Theory  (O, W, h)  3 Credits
Offered Fall Odd-numbered Years
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PHIL F102X, PS F101X.
Cross-listed with PHIL F411.
Lecture + Lab + Other: 3 + 0 + 0
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<th>Course Code</th>
<th>Course Title</th>
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<th>Prerequisites</th>
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<th>Notes</th>
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<td>PS F412</td>
<td>Modern Political Theory</td>
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<td>Offered Spring Even-numbered Years</td>
<td>WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; PHIL F102X; PS F101X.</td>
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<td>Recommended: WRTG F111X; PS F303.</td>
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<td>PS F414</td>
<td>Contemporary Political Philosophy</td>
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<td>Offered Spring Even-numbered Years</td>
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<td>PS F425</td>
<td>Federal Indian Law and Alaska Natives</td>
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<td>Offered Fall</td>
<td>Cross-listed with PHIL F414.</td>
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<td>PS F426</td>
<td>Constitutional Law I: Federalism</td>
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<td>Offered Spring Odd-numbered Years</td>
<td>Cross-listed with WRTG F111X. WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; PS F101X.</td>
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<td>PS F435</td>
<td>Constitutional Law II: Civil Rights and Liberties</td>
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<td>Offered Spring Even-numbered Years</td>
<td>Cross-listed with WRTG F111X. WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; PS F101X.</td>
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<td>PS F437</td>
<td>United States Foreign Policy</td>
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<td>Offered Spring Even-numbered Years</td>
<td>U.S. foreign policy in the postwar and post cold war period, including development of policy (domestic and foreign influences), administration of political, economic and military policies, and evaluation of policy effectiveness. Analyzes the historical background of the U.S. role in the world today and leading personalities and events that are a part of it.</td>
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<td>Recommended: WRTG F211X.</td>
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<td>PS F447</td>
<td>U.S. Environmental Politics</td>
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<td>Offered Spring</td>
<td>Cross-listed with WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; PS F101X.</td>
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<td>PS F450</td>
<td>Comparative Indigenous Rights and Policies</td>
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<td>Offered As Demand Warrants</td>
<td>Cross-listed with WRTG F111X. WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; PS F101X.</td>
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<td>PS F452</td>
<td>International Relations of the North</td>
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<td>Offered Spring Even-numbered Years</td>
<td>Cross-listed with WRTG F111X. WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; PS F101X.</td>
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<td>PS F454</td>
<td>International Law and the Environment</td>
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<td>Offered Spring Even-numbered Years</td>
<td>Cross-listed with WRTG F111X. WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; PS F101X.</td>
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PS F455  Political Economy of the Global Environment  (O, s, a)
3 Credits
Interactions between basic aspects of the global economy (international trade, investment and development) and the natural environment. Topics include the economic impact of global environmental agreements and the environmental impact of global markets, transnational corporations and development assistance by organizations such as the World Bank.
Prerequisites: COJO F131X or COJO F141X; upper-division standing.
Stacked with ACNS F655; PS F655.
Lecture + Lab + Other: 3 + 0 + 0

PS F456  Science, Technology and Politics  (O, s, a)
3 Credits
Relationship of science, technology and politics. Connections among scientific knowledge, technology, technological innovations, politics and power. Gender roles and the influence of Western science. Both historical and comparative aspects are included. Course is also available online.
Prerequisites: COJO F131X or COJO F141X; upper-division standing.
Recommended: PS F101X.
Stacked with ACNS F656; PS F656.
Lecture + Lab + Other: 3 + 0 + 0

PS F458  Comparative Environmental Politics  (s, a)
3 Credits
Offered Fall Odd-numbered Years
Enduring issues of the field of comparative politics and their relation to global environmental problems. Biodiversity, transboundary pollution capacity, political processes and organizations, and international commitments all potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.
Prerequisites: Upper-division standing.
Recommended: PS F201X.
Stacked with ACNS F658; PS F658.
Lecture + Lab + Other: 3 + 0 + 0

PS F460  Government and Politics of Canada  (W, s, a)
3 Credits
Offered Spring Odd-numbered Years
The Canadian political system, covering the Canadian constitution, federal structure, parliamentary government and public policy, as well as contemporary issues concerning Native rights and the Canadian North. Students will complete a major research paper on specific policy areas (language, education, health care, environment, natural resources, foreign relations).
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F201X; upper-division standing.
Stacked with ACNS F660; PS F660.
Lecture + Lab + Other: 3 + 0 + 0

PS F462  Alaska Government and Politics  (s, a)
3 Credits
Offered Spring Odd-numbered Years
Alaska’s government and politics, in the context of American state and local government, and politics and governments of circumpolar Northern nations. Topics include political history, constitution, political parties, interest groups, elections, public opinion, governor, legislature, judiciary, administration and local governments. Compares Alaska to the contiguous 48 states and subnational governments of the circumpolar North; examines how government institutions and processes respond to social, environmental and political changes of Northern communities.
Prerequisites: Upper-division standing.
Stacked with ACNS F662; PS F662.
Lecture + Lab + Other: 3 + 0 + 0

PS F464  East Asian Governments and Politics  (W, s)
3 Credits
Offered Fall Even-numbered Years
Modern East Asia (including China, Taiwan, Japan, North and South Korea) politics and society, including governmental institutions, political processes and regional and global foreign relations.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F201X.
Lecture + Lab + Other: 3 + 0 + 0

PS F467  Political Development in Latin America and the Caribbean  (W, s)
3 Credits
Offered Fall Odd-numbered Years
Exploration of major issues and concepts in the development and governances of modern Latin America and the Caribbean region, including the legacies of colonialism, revolution, military rule, economic challenges and the quest for democratic stability. Includes a historical overview of the region and cases drawn from the Caribbean, Mexico, Central and South America.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; HIST F275.
Recommended: SPAN F221.
Cross-listed with HIST F467.
Lecture + Lab + Other: 3 + 0 + 0

PS F468  Government and Politics of Russia  (W, s, a)
3 Credits
Offered Spring Even-numbered Years
Current developments in Russia from a number of perspectives. The effect of history and geography on political change; the nature of Russian government and society; the legacies of Lenin, Stalin and Gorbachev; and the ideological nature of regimes and leadership. Economic forces and the political struggle in governance; revolution, democracy and reform; and the international role of Russia, particularly in relation to the former Soviet republics, Eastern Europe and other border areas.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PS F201X.
Stacked with ACNS F668; PS F668.
Lecture + Lab + Other: 3 + 0 + 0

PS F472  Ethics in International Affairs  (h)
3 Credits
Offered Spring Odd-numbered Years
Examination of questions including: What is in the interest of the nation-state according to the logic of statecraft? How does the national interest relate to broader human interest? How does morality relate to the international legal order? Examination is through theory and case studies.
Prerequisites: PHIL F322X or PS F221X.
Cross-listed with PHIL F472.
Lecture + Lab + Other: 3 + 0 + 0

PS F473  Politics and Film  (s)
3 Credits
Offered As Demand Warrants
Engage film with a critical political perspective. Concepts related to political power, society, and nature are surveyed through political science literature and politics-themed films. Quests for political power, difficulties of governance, politics of campaigns and elections, privacy and government surveillance, and political violence are concepts explored in this course.
Prerequisites: PS F101X.
Cross-listed with FLPA F473.
Lecture + Lab + Other: 3 + 0 + 0
PS F475  Internship in Public Affairs  (s)  
3 Credits  
Study of public agencies or organizations through actual experience. May be repeated for credit for a maximum of 12 credits.  
**Prerequisites:** Upper-division standing and permission of instructor.  
**Lecture + Lab + Other:** 0 + 0 + 10

PS F499  Senior Thesis  (W)  
3 Credits  
Thesis will draw from the literature in at least two sub-fields of political science (U.S. government/politics, political theory, public law, comparative politics, international relations) in its analysis.  
**Prerequisites:** WRTG F111X; WRTG F211X or WRTG F213X; PS F101X; PS F222; senior standing; permission of instructor.  
**Lecture + Lab + Other:** 1.5 + 0 + 7.5

PS F603  Public Policy  
3 Credits  
Offered Spring Even-numbered Years  
The processes of policy development, implementation, and change are analyzed with major policy frameworks and models used in contemporary political science. These frameworks and models will be applied to environmental sustainability and other social policy issues. Students will develop expertise in a specific policy area and complete oral presentations related to their policy interests.  
**Prerequisites:** Graduate Standing.  
**Cross-listed with:** ACNS F603.  
**Stacked with PS F403.**  
**Lecture + Lab + Other:** 3 + 0 + 0

PS F647  U.S. Environmental Politics  (a)  
3 Credits  
Offered Spring  
U.S. political institutions as they relate to making policies for protecting the quality of the natural environment. The politics of nuclear waste, endangered species, air and water pollution, and wilderness preservation. Analysis of the National Environmental Policy Act, sustainable development, limits to growth and other topics. Course is also available online.  
**Prerequisites:** Graduate standing.  
**Cross-listed with:** ACNS F647.  
**Stacked with PS F447.**  
**Lecture + Lab + Other:** 3 + 0 + 0

PS F650  Comparative Indigenous Rights and Policies  (a)  
3 Credits  
Offered As Demand Warrants  
Comparative approach to analyzing Indigenous rights and policies in different nation-state systems. Multiple countries and specific policy developments examined for factors promoting or limiting self-determination.  
**Prerequisites:** Graduate Standing.  
**Cross-listed with:** ACNS F657.  
**Stacked with PS F450; ANS F450.**  
**Lecture + Lab + Other:** 3 + 0 + 0

PS F654  International Law and the Environment  (a)  
3 Credits  
International environmental law. Includes international case law regulating the sea, airspace, outer space and the polar regions; comprehensive international regulatory and legal instruments to protect the environment (e.g., the U.N. Framework Convention on Climate Change); and the doctrines, principles and rules of international law that are basic to an understanding of international legal regimes and the environment. Course is also available online.  
**Prerequisites:** Graduate standing.  
**Recommended:** Undergraduate course in international law, organization, or politics.  
**Cross-listed with:** ACNS F654.  
**Stacked with PS F454.**  
**Lecture + Lab + Other:** 3 + 0 + 0

PS F655  Political Economy of the Global Environment  (a)  
3 Credits  
Interactions between basic aspects of the global economy (international trade, investment and development) and the natural environment. Topics include the economic impact of global environmental agreements and the environmental impact of global markets, transnational corporations and development assistance by organizations such as the World Bank.  
**Prerequisites:** Graduate standing.  
**Cross-listed with:** ACNS F655.  
**Stacked with PS F455.**  
**Lecture + Lab + Other:** 3 + 0 + 0

PS F656  Science, Technology and Politics  (a)  
3 Credits  
Relationship of science, technology and politics. Connections among scientific knowledge, technology, technological innovations, politics and power. Gender roles and the influence of Western science. Both historical and comparative aspects are included. Course is also available online.  
**Prerequisites:** Graduate standing.  
**Recommended:** PS F101X.  
**Cross-listed with:** ACNS F656.  
**Stacked with PS F456.**  
**Lecture + Lab + Other:** 3 + 0 + 0

PS F658  Comparative Environmental Politics  (a)  
3 Credits  
Offered Fall Odd-numbered Years  
Enduring issues of the field of comparative politics and their relation to global environmental problems. Biodiversity, transboundary pollution capacity, political processes and organizations, and international commitments all potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.  
**Prerequisites:** Graduate standing.  
**Recommended:** PS F201X.  
**Cross-listed with:** ACNS F658.  
**Stacked with PS F458.**  
**Lecture + Lab + Other:** 3 + 0 + 0
PS F660  Government and Politics of Canada  (a)  
3 Credits  
Offered Spring Odd-numbered Years  
The Canadian political system, covering the Canadian constitution, federal structure, parliamentary government and public policy, as well as contemporary issues concerning Native rights and the Canadian North. Students will complete a major research paper on specific policy areas (language, education, health care, environment, natural resources, foreign relations).  
Prerequisites: PS F201X; graduate standing.  
Cross-listed with ACNS F660.  
Stacked with PS F460.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F662  Alaska Government and Politics  (a)  
3 Credits  
Offered Spring Odd-numbered Years  
Alaska's government and politics, in the context of American state and local government, and politics and governments of circumpolar Northern nations. Topics include political history, constitution, political parties, interest groups, elections, public opinion, governor, legislature, judiciary, administration and local governments. Compares Alaska to the contiguous 48 states and subnational governments of the circumpolar North; examines how government institutions and processes respond to social, environmental and political changes of Northern communities.  
Prerequisites: Graduate standing.  
Cross-listed with ACNS F662.  
Stacked with PS F462.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F668  Government and Politics of Russia  (a)  
3 Credits  
Offered Spring Even-numbered Years  
Current developments in Russia from a number of perspectives. The effect of history and geography on political change; the nature of Russian government and society; the legacies of Lenin, Stalin and Gorbachev; and the ideological nature of regimes and leadership. Economic forces and the political struggle in governance; revolution, democracy and reform; and the international role of Russia, particularly in relation to the former Soviet republics, Eastern Europe and other border areas.  
Prerequisites: PS F201X; graduate standing.  
Cross-listed with ACNS F668.  
Stacked with PS F468.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F669  Arctic Politics and Governance  
3 Credits  
Offered Fall  
This course traces current developments in Arctic politics and governance from multiple perspectives, including exploring interests, processes, and behaviors of Arctic governments and non-state actors, individually and collectively. The course surveys the formal and informal institutions that govern resource development, pollution, shipping, state-indigenous relations and security. A background in comparative politics and/or international relations is also recommended.  
Prerequisites: PS F450, PS F452 or PS F454; graduate standing.  
Cross-listed with ACNS F669.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F692  Graduate Seminar  
1-6 Credits  
Offered As Demand Warrants  
Intensive study of selected topics in the discipline.  
Lecture + Lab + Other: 1-6 + 0 + 0  

PS F699  MA Thesis  
1-9 Credits  
Prerequisites: Permission of instructor.  
Lecture + Lab + Other: 0 + 0 + 0  

Power Generation (PGEN)  

PGEN F101  Introduction to Power Generation, Distribution and Alternative Energy  
3 Credits  
Designed for those interested in gaining knowledge of the modern methods of commercial power generation and its distribution. Provides an overview of current trends toward the development of stable, sustainable, alternative energy, production method(s) and terminology/concepts relative to modern industrial power generation.  
Recommended: WRTG F111X; any F100-level MATH.  
Lecture + Lab + Other: 3 + 0 + 0  

PGEN F102  Basic Electricity for Power Generation Operators  
4 Credits  
Introduction to basic electrical theory and to hands-on training for basic electricity. Introduction to basic electrical equipment, systems, and instrumentation utilized in the production and control of commercial electrical power generation.  
Recommended: WRTG F111X; any F100-level MATH.  
Lecture + Lab + Other: 3 + 2 + 0  

PGEN F103  Introduction to Power Generation: Maintenance  
4 Credits  
Designed for those interested in advancing their knowledge of maintenance relative to the commercial power industry. Provides overview of power generation equipment and the routine maintenance required to keep the equipment. Also provides an overview of safe working practices, tools, procedures, drawings, Piping and Instrumentation (P&IDs) and Process Safety Management (PSM).  
Prerequisites: PGEN F101; PGEN F102.  
Recommended: Computation course.  
Lecture + Lab + Other: 3 + 2 + 0  

PGEN F104  Gas and Steam Turbines: Cogeneration and Combined Cycle Technologies  
4 Credits  
Introduces basic information associated with modern gas and steam turbines, and the systems in which they are used to produce electrical power and/or steam for heating.  
Prerequisites: PGEN F101; PGEN F102; PGEN F103.  
Recommended: Computation course.  
Lecture + Lab + Other: 4 + 0 + 0  

Process Technology (PRT)  

PRT F101  Introduction to Process Technology  
3 Credits  
Introduction to process operations in industry. Non-mathematical overview of general information, processes, procedures and equipment a process operator would be expected to know and use.  
Lecture + Lab + Other: 3 + 0 + 0
PRT F110  Introduction to Occupational Safety, Health and Environmental Awareness
3 Credits
Overview of the field of safety, health and environment within the process industry. Covers plant hazards, safety, and environmental systems and equipment, and applicable government regulations and industry standards.
Lecture + Lab + Other: 3 + 0 + 0

PRT F117  Drafting for Technicians
3 Credits
Offered As Demand Warrants
Skills and techniques needed to produce process piping and instrumentation drawings.
Lecture + Lab + Other: 2 + 2 + 0

PRT F120  Water Quality Management for Process Industries
4 Credits
Offered As Demand Warrants
Overview of the chemistry, biology, hydraulics and hydrology related to water management in industries. Water distribution systems, water processing, operation of water works, wastewater processing, advanced wastewater treatment and water reuse.
Lecture + Lab + Other: 3 + 3 + 0

PRT F130  Process Technology I: Equipment
4 Credits
Selected process equipment including rotating machinery and process units. Emphasis on equipment components, construction, preventative maintenance and safety. Includes hands-on experience.
Prerequisites: PRT F101.
Lecture + Lab + Other: 3 + 2 + 0

PRT F135  Stationary Equipment
4 Credits
Offered Fall
A detailed hands-on lecture/lab course covering stationary equipment used in a variety of process industries. Piping, valves, vessels, tanks, exchangers, heaters, boilers, mineral processing, mill equipment and distillation equipment are covered.
Lecture + Lab + Other: 3 + 2 + 0

PRT F140  Industrial Process Instrumentation I
3 Credits
Physics of pressure, temperature, level and flow measurement; mechanical and electrical aspects of instruments used to control dynamics of processes. Dynamics of automatic control including proportional control, automatic reset, derivative action and integral timing.
Prerequisites: DEVM F105.
Lecture + Lab + Other: 2 + 2 + 0

PRT F144  Industrial Process Instrumentation II
3 Credits
Continuation of PRT F140. Emphasis on repair, maintenance and calibration, including hands-on physical training on a wide variety of process instruments.
Prerequisites: PRT F140.
Lecture + Lab + Other: 2 + 2 + 0

PRT F140; PRT F144.

PRT F146  Valve Maintenance and Instrumentation
3 Credits
A study of digital and analog industrial measurement and control instrumentation, including continuous analog control loops, relay logic and programmable logic controllers. Emphasis is on commonly used process measurement devices, control methods and strategies, and the proper selection, identification, design, installation and operation of instrumentation.
Prerequisites: PRT F140; PRT F144.
Recommended: MATH F113X or higher.
Lecture + Lab + Other: 2 + 2 + 0

PRT F148  Valve Maintenance and Instrumentation
3 Credits
Offered As Demand Warrants
Specific advanced subjects of industrial process valve maintenance and instrumentation. Includes calibration, configuration, troubleshooting, and use of valves with instrumentation. Concepts of contemporary plant control systems, commonly used industrial process measurement, control communication protocols and topologies related to valve control will be discussed. Covers maintenance and operation of gate, globe, ball, plug, check and special-purpose valves. Details of actuators and various accessories related to valve maintenance and control will be explained and related to valve selection based on application.
Recommended: PRT F130.
Lecture + Lab + Other: 3 + 1 + 0

PRT F146.

PRT F148.
PRT F250  Process Troubleshooting  
3 Credits
Troubleshooting process operations and problems. Using indicators, variables and controllers along with a formalized process of troubleshooting. Troubleshooting examples will reflect current needs of industry. Prerequisites: PRT F230
Lecture + Lab + Other: 3 + 0 + 0

PRT F255  Quality Concepts for the Process Industry  
1 Credit
Introduction to current quality concepts applied to role of process technician. Includes quality concepts with respect to the client and the role of statistical processes used by the operator in achieving quality.
Lecture + Lab + Other: 1 + 0 + 0

PRT F275  Process Technology Internship  
1-9 Credits
Offered As Demand Warrants
Working experience in and exposure to various stages and settings within the process industry. Endorsed and promoted by Alaska Process Industry Careers Consortium, the internship is an intensive exposure to the various duties and responsibilities of the process operator in Alaska. A maximum of 9 credits may be earned.
Prerequisites: Permission of instructor.
Recommended: PRT F101, PRT F110, PRT F140.
Lecture + Lab + Other: 0 + 5-45 + 0

Psychology (PSY)

PSY F101X  Introduction to Psychology  (s)  
3 Credits
Principles of general psychology emphasizing natural science and social science orientation. Cultural, environment, heredity and psychological basis for integrated behavior; visual, audition and the other senses; motivation and emotion; basic processes in learning, problem solving, and thinking; personality; psychological disorders – their prevention and treatment, and therapeutic strategies.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

PSY F240  Psychology of Development  (s)  
3 Credits
Offered Fall and Spring
The psychology of human development from conception to death. Critical emphasis on theory and research within the field of developmental psychology with the role of culture as an influencing factor.
Prerequisites: PSY F101X.
Lecture + Lab + Other: 3 + 0 + 0

PSY F245  Child Development  (s)  
3 Credits
A study of the physical, cultural, emotional, cognitive and social aspects of a child’s development from prenatal period through early adolescence. Focus on developmental theories including Erickson, Gardner, Gilligan, Kagan, Sternberg, Vygotsky and other contemporary theories of child and adolescent development.
Prerequisites: WRTG F111X.
Cross-listed with ED F245.
Lecture + Lab + Other: 3 + 0 + 0

PSY F250  Introductory Statistics for Social Sciences  
3 Credits
Offered Spring
Statistics applied to social scientific topics. Includes descriptive statistics, frequency distributions, sampling distributions, elementary probability, estimation of population parameters, hypothesis testing (one and two sample problems), correlation, simple linear regression and one-way analysis of variance.
Prerequisites: MATH F113X or MATH F151X or MATH F251X; PSY F101X or SOC F101X or SOC F201X.
Cross-listed with SOC F250.
Lecture + Lab + Other: 3 + 0 + 0

PSY F275  Introduction to Social Science Research Methods  (s)  
3 Credits
Offered Fall and Spring
Introduction to research methods in psychology. Includes the scientific process, developing research ideas, experimental and non-experimental designs, sampling, surveys and data analysis.
Prerequisites: PSY F101X.
Lecture + Lab + Other: 3 + 0 + 0

PSY F301  Culture and Psychology  (s)  
3 Credits
Examines cultural influences on human thought behavior; interactions of culture and self; multicultural experiences and intercultural relations. Presents a survey of historic and contemporary psychological research and theory on culture with a consideration of unique methodological challenges presented by cross-cultural psychological research.
Prerequisites: PSY F101X, PSY F275.
Lecture + Lab + Other: 3 + 0 + 0

PSY F304  Personality  (s)  
3 Credits
Offered Spring Even-numbered Years
Psychological and social/cultural determinants of personality formation including appropriate theories in both areas.
Prerequisites: PSY F101X, PSY F275.
Lecture + Lab + Other: 3 + 0 + 0

PSY F320  History and Systems of Psychology  (s)  
3 Credits
Offered As Demand Warrants
The history of present psychology from associationism to humanism with attention to both the philosophical and physiological foundations of psychology, the most important theorists and movements, and paradigmatic shifts in the evolution of contemporary psychological systems.
Prerequisites: PSY F101X.
Recommended: previous or current enrollment in PSY F275.
Lecture + Lab + Other: 3 + 0 + 0

PSY F330  Social Psychology  (s)  
3 Credits
Offered Spring Odd-numbered Years
Analysis of intergroup relationships in terms of process and value orientation, their influences on the personality, and aspects of collective behavior on group and person. Aspects of social interaction that have cultural and intercultural variation. Also offered through eLearning & Distance Education.
Prerequisites: PSY F101X or SOC F101X; PSY F275 or SOC F373.
Cross-listed with SOC F330.
Lecture + Lab + Other: 3 + 0 + 0
PSY F333  Human Sexualities Across Cultures  (s)  
3 Credits  
Offered Alternate Fall Odd-numbered Years  
Exploration of how people in a variety of cultures, both contemporary and historical, construct the meaning and experience of sexuality and express themselves as sexual beings. Interdisciplinary study includes psychology, sociology, anthropology, gender studies and related fields, with particular focus determined by which department is offering the course.  
Prerequisites: SOC F101X; or SOC F201X or PSY F101X or WGS F201X.  
Recommended: PSY F275 or SOC F373.  
Cross-listed with SOC F333 and WGS F332.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F335  Brain and Behavior  (O/2, n)  
3 Credits  
Offered Alternate Fall Odd-numbered Years  
Study of the biological bases of human behavior. Emphasis on functional anatomy of the nervous system to understand normal behavior and behavioral disorders in terms of their psychology, development, evolution and function. Meets one-half of core upper division oral communication intensive requirement.  
Prerequisites: COJO F131X or COJO F141X; PSY F101X; PSY F275.  
Recommended: BIOL F112X or BIOL F116X.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F337  Sport Psychology  (W)  
3 Credits  
Offered As Demand Warrants  
Theoretical and practical applications of psychological issues related to participation in physical activities, including exercise adherence, performance enhancement, group dynamics, leadership and coaching behaviors, arousal/anxiety, intervention strategies and lifespan participation.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PSY F101X.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F345  Abnormal Psychology  (s)  
3 Credits  
Offered Fall  
A study of abnormal behavior, its causes, treatment and social impact. The major classifications of disorders are presented.  
Prerequisites: PSY F101X.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F360  Psychology of Women Across Cultures  (O, s)  
3 Credits  
Offered As Demand Warrants  
Major theories, research and empirical data which describes the psychology of women as a discrete field, philosophical values of feminism and history of women's roles in society. The impact of culture on women interpersonally and intrapsychically examined across cultures.  
Prerequisites: COJO F131X or COJO F141X; PSY F101X or WGS F201X.  
Cross-listed with WGS F360.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F370  Drugs and Behavior  (s)  
3 Credits  
Offered as Demand Warrants  
Explores the effects of licit, illicit, therapeutic, and non-therapeutic drugs on behaviors, physiology, emotions, and thought processes. Includes introduction to factors impacting these effects, such as cultural, environmental, and societal influences. Topics covered also include alcoholism, law enforcement and legal aspects of drug use and abuse, drug education alternatives, and treatment and rehabilitation of drug users.  
Prerequisites: PSY F101X.  
Recommended: PSY F275.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F390  Industrial and Organizational Psychology  (O, W, s)  
3 Credits  
Offered As Demand Warrants  
Application of psychological principles, theories and methods to issues related to work processes and work organizations. Includes employee selection, motivation, performance appraisal, decision-making, group dynamics, power and leadership, job design, and organizational change and development.  
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PSY F101X; PSY F250; PSY F275.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F392  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

PSY F440  Learning and Cognition  (s)  
3 Credits  
Offered Spring Odd-numbered Years  
Theory and research on the fundamentals of learning. Topics include information processing, attention and consciousness, learning processes, memory structures, retrieval, and the biological and cultural considerations relevant to each.  
Prerequisites: PSY F101X; PSY F275; nine credits of psychology courses with a grade of C- or higher.  
Lecture + Lab + Other: 3 + 0 + 0  

PSY F445  Community Psychology  (W, s)  
3 Credits  
Offered Fall  
Survey of principles and applications of community psychology, emphasizing person-environment interactions and societal and cultural impacts upon individual and community functioning. Attention given to interventions which facilitate psychological competence and empowerment, prevent disorder, and promote social change.  
Prerequisites: WRTG F111X; WRTG F211X; WRTG F212X, WRTG F213X or WRTG F214X; PSY F101X; PSY F275; 9 credits of psychology courses with a grade of C- or higher.  
Lecture + Lab + Other: 3 + 0 + 0
PSY F448  Understanding FASD: Diagnosis, Intervention and Strategies
3 Credits
This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting.
Cross-listed with EDSE F448.
Stacked with PSY F648; EDSE F648.
Lecture + Lab + Other: 3 + 0 + 0

PSY F455  Clinical Psychology
3 Credits
Offered As Demand Warrants
Survey of clinical psychology methods and approaches with consideration of psychological assessment and treatment. Topics include specific counseling strategies, such as psychoanalysis, behavior therapy, crisis intervention, rational-emotive and humanistic approaches, along with ethics in clinical practice and issues in cross-cultural counseling and psychological assessment and treatment. A clinical lab will allow students to apply their classroom learning and acquire hands-on experience in clinical skills.
Prerequisites: Nine credit hours of PSY courses to include PSY F101X and PSY F345.
Lecture + Lab + Other: 2 + 3 + 0

PSY F469  Health Psychology
3 Credits
Offered Fall
Scientific study of behaviors relating to health enhancement, disease and injury prevention, safety and rehabilitation. While mental health is included, the emphasis is on physical health.
Prerequisites: PSY F101X; PSY F275; and junior standing.
Stacked with PSY F669.
Lecture + Lab + Other: 3 + 0 + 0

PSY F470  Sensation and Perception (O, W, s)
3 Credits
Offered As Demand Warrants
An integrated psychological and physiological approach to sensation, including the fundamental mechanisms of vision, hearing, taste, smell and movement. Emphasis will include theoretical models and systems of perception, and how they are influenced by cultural, developmental, hereditary, physiological, psychological and social factors. Meets core upper division writing and oral intensive requirements.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; nine credit hours of PSY courses (which must include PSY F101X and PSY F275).
Lecture + Lab + Other: 3 + 0 + 0

PSY F475  Research Design and Analysis in Psychology (W, s)
3 Credits
Offered Fall Even-numbered Years
An integrated approach to the study of research design and analysis in psychology. Emphasis on research methodologies and techniques. Design, execution and analysis of social science research.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; PSY F101X; PSY F250 or SOC F250 or STAT F200X; PSY F275.
Lecture + Lab + Other: 2 + 3 + 0

PSY F480  Qualitative Social Science Research (W, s)
3 Credits
Offered Spring Odd-numbered Years
Introduction to classical and contemporary research within the qualitative (or interpretive) paradigm of social science. Discusses the theoretical frameworks, historical traditions, epistemological and ethical issues of qualitative approaches. Uses hands-on experience in the practicalities and excitement of a variety of methods for gathering qualitative data and conducting qualitative analysis.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; one lower-division social science research methods course.
Cross-listed with SOC F480.
Lecture + Lab + Other: 3 + 0 + 0

PSY F485  Senior Seminar (s)
3 Credits
Offered Spring
Synthesis and integration of knowledge and skills developed by psychology majors. Includes a general knowledge of psychology, a basic knowledge of the research process and methods, insights into the way culture, gender, ethnicity, social class, and other diversity issues influence research and practice in psychology.
Prerequisites: PSY F275; Psychology major with senior standing.
Lecture + Lab + Other: 3 + 0 + 0

PSY F488  Practicum in Psychology
1-6 Credits
Individual practice and training to work in a setting or experience the work of a psychologist. Faculty supervision on campus or on site. Requires 50 clock hours per credit hour. Placement must be arranged during the prior semester before registering for this course.
Prerequisites: PSY F101X; psychology major with junior or senior standing; with minimum 12 credits of psychology.
Recommended: PSY F275.
Lecture + Lab + Other: 1 + 0 + 0

PSY F492  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

PSY F498  Research
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

PSY F499  Thesis
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

PSY F602  Native Ways of Knowing
3 Credits
Offered Fall
Covers the appropriate and valid ways of describing and explaining human behavior by using the social context, culture and history of indigenous groups. Includes indigenous approaches to values, health, the interconnection of family and community; the nature of spirituality and indigenous healing; and the importance of elders and spiritual healers. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: Admittance to the Psychology Ph.D. program.
Lecture + Lab + Other: 3 + 0 + 0
PSY F603  Alaska and Rural Psychology
3 Credits
Offered Spring
Introduces rural community psychology, including the diversity of rural communities, with emphasis on Alaska and the rural circumpolar North. Provides an introduction to rural health promotion, prevention and behavioral health care, and a basis for understanding many of the issues of services planning and delivery in rural areas. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: PSY F632; graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

PSY F604  Biological and Pharmacological Bases of Behavior
3 Credits
Offered Fall
Biological underpinnings of behavior and the basic principles of pharmacology. Deals with physiological causes and contributors to psychopathology and the medical sequelae of psychiatric disorders. Topics will include issues such as differential diagnosis, referral for medical or psychiatric evaluation and the functional and structural characteristics of relevant physiological systems. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: PSY F622; graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

PSY F605  History and Systems of Psychology
1 Credit
Offered Fall
A brief philosophically oriented overview of the history of psychology. Compares Western psychology in the 19th and 20th centuries and selected indigenous psychologies of Asia and North America. Special attention is given to systems of thought that have emerged since the founding of psychology as an empirical science. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: Graduate standing in Psychology.
Lecture + Lab + Other: 1 + 0 + 0

PSY F606  Native Ways of Healing
3 Credits
Explores healing from a variety of Native perspectives, particularly from an Alaska Native perspective. Emphasizes the preparation and education of healers, their roles and work and integration within the community. Students will have the opportunity to examine the possible integration of clinical and community psychology with indigenous approaches to healing. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: Graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

PSY F607  Cognition, Affect and Culture
3 Credits
Offered Spring
Presents an overview of attention, memory, appraisal and emotion with applications to clinical psychology in a cultural context. Cultural influences on emotional experience and cognition are explored. The etiology and treatment of psychological disorders with significant cognitive and affective disturbance are explored. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: Graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

PSY F611  Ethics and Professional Practice
3 Credits
Offered Spring
Comprehensive overview of ethical principles and legal statutes involved in clinical and community practice and research. Designed as a forum for discussion of ethical issues and other concerns relevant to professionals in psychology, with particular emphasis given to ethical issues in cross cultural and rural contexts in Alaska. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: Admittance to the Psychology Ph.D. program.
Lecture + Lab + Other: 3 + 0 + 0

PSY F612  Human Development in a Cultural Context
3 Credits
Offered Spring
Study of development theory, research and substantive applied issues across the life span. Particular emphasis on understanding how culture and sociocultural context impact the interplay of biology and environment in development of essential qualities and characteristics of individuals. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: Graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

PSY F616  Program Evaluation and Community Consultation I
3 Credits
Offered Fall
The first in a two-course series, providing an overview of theories, methods and applications of program evaluation and community consultation as tools for facilitating systemic and programmatic changes in community and clinical settings. Seminar covers techniques of entry into various settings and designing program evaluations in collaboration with various community organizations. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
Prerequisites: PSY F639; graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0
**PSY F617  Program Evaluation and Community Consultation II**
3 Credits
Offered Spring
The second in a two-course series, introducing the principles and dynamics involved in various types of consultative relationships in community and clinical settings, with a focus on cross-cultural and ethical issues. Covers methods of program evaluation implementation and use of program evaluation findings for consulting with relevant stakeholders. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
**Prerequisites:** PSY F616; graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

**PSY F622  Multicultural Psychopathology**
3 Credits
Offered Fall
An overview of contemporary views on child and adult psychopathology from a multicultural perspective. The fundamentals of clinical interviewing and diagnostics. Includes training in the DSM-IV diagnostic system. The role of culture, ethnicity, gender and social class in symptom formation and the experience of psychological disorders will be examined. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
**Prerequisites:** Graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

**PSY F623  Intervention I**
3 Credits
Offered Fall
Increases knowledge and skills related to traditional and nontraditional therapeutic interventions. Students are provided with a range of theoretical perspectives, a conceptual understanding of and an opportunity to practice a wide range of culturally relevant and appropriate techniques that are applicable in traditional and non-traditional community mental health settings. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
**Prerequisites:** Graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

**PSY F629  Intervention II**
3 Credits
Offered Spring
Deepens understanding of the variety and application of intervention techniques in diverse settings. Directs students to explore the efficacy of specific interventions in a range of settings and with a variety of populations. Shapes critical thinking and basic intervention evaluation skills. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
**Prerequisites:** PSY F623; admittance to Psychology Ph.D. program.
Lecture + Lab + Other: 3 + 0 + 0

**PSY F632  Community Psychology Across Cultures**
3 Credits
Offered Fall
An overview of theory, research and practice of community psychology with particular emphasis on cross-cultural themes, design and evaluation of interventions in remote and rural community settings, prevention and health promotion, and social change. Particular emphasis will be on issues relevant to Alaska Native communities. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
**Prerequisites:** Graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

**PSY F633  Tests and Measurement in Multi-cultural Context**
3 Credits
Offered Fall
Principles of construction, analysis and evaluation of psychological tests in a multicultural context. Emphasizes culturally sensitive application of psychological tests and measurements. Focuses on the history, theory and methods of psychological testing by examining intelligence, personality and vocation. Discusses widely-used intelligence and personality tests and procedures. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
**Prerequisites:** Graduate standing in Psychology.
Lecture + Lab + Other: 3 + 0 + 0

**PSY F639  Research Methods**
3 Credits
Offered Spring
Methods used for research in community, clinical and cross-cultural settings. Introduces epistemologies and ethics relevant to research with rural and indigenous people. Includes a variety of designs and data-gathering methods to improve understanding of behavior in social settings. Quantitative, qualitative and mixed method approaches will be presented. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.
**Prerequisites:** Admittance to Psychology Ph.D. program.
Lecture + Lab + Other: 3 + 0 + 0

**PSY F648  Understanding FASD: Diagnosis, Intervention and Strategies**
3 Credits
Offered Spring
This is an overview course designed to educate candidates about Fetal Alcohol Spectrum Disorder: how they are acquired, current diagnostic strategies; intervention strategies within social services, therapeutic environments and school settings; and individual case management strategies. By the end of the course candidates should possess knowledge of working with children affected by fetal alcohol spectrum disorders, understand the psychosocial implications of this disorder, and be able to identify best possible strategies to accommodating and intervening with these individuals in a classroom setting. Research project required.
**Prerequisites:** Graduate standing.
Cross-listed with EDSE F648.
Stacked with PSY F448; EDSE F648.
Lecture + Lab + Other: 3 + 0 + 0
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>PSY F650</td>
<td>Multicultural Psychopathology</td>
<td>3</td>
<td>Fall</td>
<td>Fundamentals of therapeutic interviewing. Training in use of the DSM-IV diagnostic system. Examination of the role of culture, ethnicity, gender and social class in symptom formation and the experience of illness, and critical examination of these issues in clinical application of the DSM-IV. Training in DSM-IV cultural formulation. <strong>Prerequisites:</strong> PSY F345 or equivalent; admittance to Psychology Ph.D. program.</td>
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<td><strong>Cross-listed with:</strong> COUN F650.</td>
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<tr>
<td>PSY F652</td>
<td>Practicum Placement: Clinical I</td>
<td>1-3</td>
<td>Fall</td>
<td>Offered Fall. Supervised clinical practicum experience in psychological interviewing, diagnosis and psychotherapy. Applied techniques focusing on delivery of clinical services in traditional or non-traditional clinical settings. Cultural factors are considered in each of these areas. May be repeated for a maximum of 9 credits. <strong>Prerequisites:</strong> PSY F651; PSY F622; PSY F623; admittance to the Psychology Ph.D. program.</td>
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<td><strong>Lecture + Lab + Other:</strong> 1-3 + 0 + 7-20</td>
</tr>
<tr>
<td>PSY F653</td>
<td>Practicum Placement: Clinical II</td>
<td>1-3</td>
<td>Spring</td>
<td>Offered Spring. Advanced clinical practicum experience designed to provide increased depth in applying theory to the practice and improving skills as a clinician. Covers application of psychological assessment principles. Impact of cultural factors continues as a major aspect of the practicum experience. May be repeated for a maximum of 9 credits. <strong>Prerequisites:</strong> PSY F652; admittance to Psychology Ph.D. program.</td>
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<td><strong>Lecture + Lab + Other:</strong> 1-3 + 0 + 0</td>
</tr>
<tr>
<td>PSY F657</td>
<td>Quantitative Analysis</td>
<td>3</td>
<td>Fall</td>
<td>Offered Fall. The underlying principles of statistics, including the logic of statistical inference, probability, power, effect size, and type one and two errors. Uses statistics for designs including the description of groups (data reduction), correlation, predictive models (regression), inferential statistics, analysis of mixed-method designs, and common nonparametric techniques. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. <strong>Prerequisites:</strong> PSY F639; admittance to Psychology Ph.D. program.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>PSY F658</td>
<td>Qualitative Analysis</td>
<td>3</td>
<td>Fall</td>
<td>Offered Fall. Introduction to the theory of qualitative inquiry, qualitative methodologies and basic techniques of qualitative research. Enables the student to use qualitative methods in research. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. <strong>Prerequisites:</strong> PSY F639; graduate standing in Psychology.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>PSY F661</td>
<td>Multicultural Counseling</td>
<td>3</td>
<td>Spring</td>
<td>Offered Spring; As Demand Warrants. An examination of cultural and ethnic variables in human nature and their effect on the counseling process. Specific focus will be placed on the nature and function of culture, cultural variables in the context of the human experience, universal and culture specific aspects of the counseling process, barriers to effective cross-cultural counseling, specific ethnic and cultural considerations, and methods of intellectual training with special emphasis on Alaskan applications. <strong>Prerequisites:</strong> Admittance to the Counseling program; or School Counseling Certification program. <strong>Cross-listed with:</strong> COUN F660.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>PSY F669</td>
<td>Health Psychology</td>
<td>3</td>
<td>Fall</td>
<td>Offered Fall. Scientific study of behaviors relating to health enhancement, disease and injury prevention, safety and rehabilitation. While mental health is included, the emphasis is on physical health. <strong>Prerequisites:</strong> Graduate standing. <strong>Stacked with:</strong> PSY F469.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>PSY F672</td>
<td>Practicum Placement: Community I</td>
<td>3</td>
<td>Fall</td>
<td>Offered Fall. Community practicum experience designed to provide increased depth in applying theory to practice and improving skills as a community psychologist. Impact of cultural factors will be a major aspect of the practicum experience. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. Students will also be under close supervision with a community organization. May be repeated for a maximum of 9 credits. <strong>Prerequisites:</strong> Graduate standing in Psychology.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>PSY F673</td>
<td>Practicum Placement: Community II</td>
<td>3</td>
<td>Fall</td>
<td>Offered Spring. An advanced community practicum experience designed to provide increased depth in applying theory to practice and improving skills as a community psychologist. Impact of cultural factors will be a major aspect of the practicum experience. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. Students will also be under close supervision with a community organization. Second phase of PSY F672. <strong>Prerequisites:</strong> PSY F672; graduate standing in Psychology.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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</tbody>
</table>
PSY F679  Multicultural Psychological Assessment I  
3 Credits  
Offered Spring  
Introduces administration, scoring and interpretation of various intellectual and objective personality assessment instruments, as well as their psychometric properties, for children and adults. Emphasis on the meaningful integration of test results into a culturally sensitive assessment report. Highlights professional and ethical issues related to multicultural assessment practices emphasizing Alaska Natives. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.  
Prerequisites: PSY F633; admittance to the Psychology Ph.D. program.  
Lecture + Lab + Other: 1 + 0 + 0

PSY F681  Substances of Abuse in Alaska  
1 Credit  
Offered Fall  
Overview of the most prevalent substances of abuse in Alaska including physical, psychological, social and medical consequences of use and abuse. First in the sequence PSY F681, PSY F682, and PSY F683. For doctoral students in the program. In exceptional cases to students not in the doctoral program, but with appropriate background and training will be given special permission to take the course.  
Prerequisites: Admittance to the Psychology Ph.D. program.  
Lecture + Lab + Other: 1 + 0 + 0

PSY F682  Substance Abuse Assessment and Treatment Planning  
1 Credit  
Offered Fall  
Specialized tests, measurement and treatment planning for substance abuse. Emphasis on integrating results into culturally relevant treatment plans following the American Society for Addiction Medicine dimensional criteria. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. PSY F682 is the second in a continuing series that includes PSY F681 and PSY F683. For doctoral students in the program, it is to be taken as a series. In exceptional cases, students not in the doctoral program but with the appropriate background and training will be given special permission to take the course.  
Prerequisites: Admittance to Psychology Ph.D. program.  
Lecture + Lab + Other: 1 + 0 + 0

PSY F683  Clinical Interventions in Substance Abuse  
1 Credit  
Offered Fall  
Conceptualizing substance abuse as a continuum from intervention to after-care. Relevant evidence-based interventions and therapeutic communities are addressed within the context of rural Alaska Native communities. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery. Note: PSY F683 is the third in a continuing series that includes PSY F681 and PSY F682. For doctoral students in the program, it is to be taken as a series. In exceptional cases, students not in the doctoral program but with the appropriate background and training will be given special permission to take the course.  
Prerequisites: Admittance to the Psychology Ph.D. program.  
Lecture + Lab + Other: 1 + 0 + 0

PSY F684  Clinical Supervision  
3 Credits  
The clinical, ethical and cultural issues involved in supervision. Contemporary, empirically supported information regarding various approaches to supervision will be examined. Covers both the relationship inherent in clinical supervision and training in leadership and supervision of employees in other work settings. Course will be video-conferenced between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.  
Prerequisites: PSY F653; admittance to Psychology Ph.D. program.  
Lecture + Lab + Other: 3 + 0 + 0

PSY F686  Predoctoral Internship  
6 Credits  
Understanding and application of assessment and intervention techniques in diverse settings. Students are placed in clinical or community settings for 40 hours per week to apply and sharpen skills. Students work under a local supervisor who manages student caseloads and assignments in collaboration with the course instructor. Approval contingent upon approval of Dissertation proposal and of DCTs (Directors of Clinical Training).  
Lecture + Lab + Other: 6 + 0 + 0

PSY F687  Multicultural Psychological Assessment II  
3 Credits  
Advanced psychological assessment tools including interviews, projective techniques and neurocognitive assessment. Emphasis on the integration of cognitive personality and other test results derived from an assessment battery into a meaningful and culturally sensitive psychological assessment report. Course will be video-conference between UAA and UAF campuses. The course will make use of Blackboard and E-res to support distance delivery.  
Prerequisites: PSY F679; admittance to Psychology Ph.D. program.  
Lecture + Lab + Other: 3 + 0 + 0

PSY F692  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

PSY F692P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

PSY F699E  Thesis  
1-9 Credits  
Lecture + Lab + Other: 1-9 + 0 + 0

PSY F699F  Thesis  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0

Recreation (RECR)

RECR F110A  Beginning Swimming  
1 Credit  
Offered As Demand Warrants  
Beginning level swimming skills, proper breathing techniques and beginning strokes. Emphasizes personal water safety.  
Lecture + Lab + Other: 0 + 3 + 0

RECR F110B  Intermediate Swimming  
1 Credit  
Offered As Demand Warrants  
Intermediate-level swimming skills, proper breathing techniques and beginning strokes. Emphasizes personal water safety.  
Lecture + Lab + Other: 0 + 3 + 0
RECR F110C  Advanced Swimming
1 Credit
Offered As Demand Warrants
Advanced-level swimming skills, proper breathing techniques and
beginning strokes. Emphasizes personal water safety.
Lecture + Lab + Other: 0 + 3 + 0

RECR F110D  Conditioning Swimming
1 Credit
Offered As Demand Warrants
Covers proper warm-up and warm-down techniques, lap swim etiquette,
and proper use of workout equipment.
Lecture + Lab + Other: 0 + 3 + 0

RECR F110E  Beginning Scuba
1 Credit
Offered As Demand Warrants
Instruction and practice in beginning underwater aquatic activities.
Prerequisites: RECR F110D.
Lecture + Lab + Other: 0 + 3 + 0

RECR F110J  Fundamentals of Competitive Water Polo
1 Credit
Offered As Demand Warrants
Introduction to the game of water polo. Students will learn techniques
used in water polo, as well as the basic rules and regulations of the sport.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120A  Aerobics
1 Credit
Offered As Demand Warrants
Moderate to high impact dance routines set to music designed to
increase cardiovascular strength, promote coordination, and increase
overall body strength and flexibility.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120C  Beginning Yoga
1 Credit
Offered As Demand Warrants
Beginning concepts and philosophy of yoga, breathing, postures,
meditation, Sanskrit names of exercises, increased muscle tone and
flexibility.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120D  Intermediate Yoga
1 Credit
Offered As Demand Warrants
Intermediate concepts and philosophy of yoga, breathing, postures,
meditation, Sanskrit names of exercises, increased muscle tone and
flexibility.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120F  Exercise And Fitness
1 Credit
Offered As Demand Warrants
Instruction and practice in activities at beginning through advanced
levels including (but not limited to) multi-fitness conditioning,
recreational fitness activities, running, cycling, walking, weight training,
aerobics, power lifting, tai chi chuan and yoga.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120G  Military Fitness Training
1 Credit
Offered As Demand Warrants
Instruction and practice in fitness activities concentrating on flexibility,
strength, and muscular and cardiovascular endurance.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120H  Multi Fitness Conditioning
1 Credit
Offered As Demand Warrants
An overview of medium to high intensity aerobic exercise and muscle
strengthening, conditioning and toning.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120J  Weight Training
1 Credit
Offered As Demand Warrants
Design and perform strength training routines using resistance to achieve
overall fitness.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120K  Advanced Weight Training
1 Credit
Offered As Demand Warrants
Design and perform strength training routines using resistance to achieve
overall fitness.
Lecture + Lab + Other: 0 + 3 + 0

RECR F120L  Zumba Fitness
1 Credit
Offered As Demand Warrants
Introduction to basic Zumba Fitness/Latin dance steps from salsa,
meringue, cumbia, reggaeton, and belly dance along with other
international rhythms. Students will learn to identify the music, as well as
a brief history of the dance.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130A  Beginning Jazz Dance
1 Credit
Offered As Demand Warrants
Develop a repertoire of jazz dance movement and terminology including
plies, isolations, stretches, traveling steps, battements, pas de burres,
jazz slides and turns. History of jazz dance.
Cross-listed with FLPA F130A.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130B  Intermediate Jazz Dance
1 Credit
Offered As Demand Warrants
Develop a repertoire of jazz dance movement and terminology including
plies, isolations, stretches, traveling steps, battements, pas de burres,
jazz slides and turns. History of jazz dance.
Cross-listed with FLPA F130B.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130C  Advanced Jazz Dance
1 Credit
Offered As Demand Warrants
Develop a repertoire of a jazz dance movement and terminology including
plies, isolations, stretches, traveling steps, battements, pas de burres,
jazz slides and turns. History of jazz dance.
Cross-listed with FLPA F130C.
Lecture + Lab + Other: 0 + 3 + 0
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered As Demand Warrants</th>
<th>Description</th>
<th>Cross-listed with</th>
<th>Lecture + Lab + Other:</th>
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<tbody>
<tr>
<td>RECR F130D</td>
<td>Modern Dance</td>
<td>1</td>
<td></td>
<td>Develop a repertoire of modern dance movement and terminology including contraction and release, swings, triplets, fall and recovery, rolls and improvisations.</td>
<td>FLPA F130D.</td>
<td>0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F130E</td>
<td>Beginning Ballroom Dance</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Students with little or no background in social dance. Our aim is to have a good time and build a strong foundation for future learning. Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka.</td>
<td>FLPA F130E.</td>
<td>0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F130F</td>
<td>Intermediate Ballroom Dance</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka. Our aim is to have a good time and build a strong foundation for future learning. This course is for students with a beginning background in social dance.</td>
<td>FLPA F130F.</td>
<td>0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F130G</td>
<td>Advanced Ballroom Dance</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Dances covered include waltz, foxtrot, single-count swing, east coast swing, salsa, cha cha, merengue and, time permitting, polka. Our aim is to have a good time and build an even stronger foundation for future learning. This course is for students with an intermediate background in social dance.</td>
<td>FLPA F130G.</td>
<td>0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F130H</td>
<td>Beginning Ballet</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Instruction and practice in ballet at beginning levels.</td>
<td>FLPA F130H.</td>
<td>0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F130I</td>
<td>Intermediate Ballet</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Instruction and practice in ballet at intermediate levels.</td>
<td>FLPA F130I.</td>
<td>0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F130J</td>
<td>Advanced Ballet</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Instruction and practice in ballet at advanced levels.</td>
<td>FLPA F130J.</td>
<td>0 + 3 + 0</td>
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<tr>
<td>RECR F130K</td>
<td>Middle Eastern Dance</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Designed for students with some or no background in Middle Eastern dance or anyone who wants to refine their technique and gain a deeper understanding of the different styles, history and evolution of Middle Eastern dance from social dance to performance art. Majority of semester will focus on basic dance vocabulary and choreography as well as dancing with props such as veils and finger cymbals.</td>
<td>FLPA F130N.</td>
<td>0 + 3 + 0</td>
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<tr>
<td>RECR F130L</td>
<td>Beginning Hip Hop</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Introduction to basic movements and terminology of hip hop dances and associated body movements. Students will gain these principles and an ability to execute maneuvers presented in class.</td>
<td>FLPA F130Q.</td>
<td>0 + 3 + 0</td>
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<tr>
<td>RECR F130M</td>
<td>Beginning Break Dance</td>
<td>1</td>
<td></td>
<td>Offered Fall Introduction to basic movements and terminology of break dancing, and an understanding of associated body movements. Students will gain an understanding of these principles and an ability to execute maneuvers presented in class.</td>
<td>FLPA F130R.</td>
<td>0 + 3 + 0</td>
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<tr>
<td>RECR F130N</td>
<td>Beginning Contemporary Dance</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Contemporary dance is an opportunity for students to explore contemporary dance movement, and gain strength and flexibility to improve their ability to dance. Designed to introduce students to contemporary dance, the course will be a combination of stretching, conditioning, and dancing. Students will be expected to demonstrate an understanding of basic contemporary dance principles and interpretation upon completion.</td>
<td>FLPA F130S.</td>
<td>0 + 3 + 0</td>
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<tr>
<td>RECR F130O</td>
<td>Beginning Lyrical Dance</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Instruction and practice in lyrical dance at the beginning level. Students will gain an understanding of body movements and choreographic styles of lyrical dance, as well as an understanding of one’s physical self as a dancer.</td>
<td>FLPA F130T.</td>
<td>0 + 3 + 0</td>
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<tr>
<td>RECR F130P</td>
<td>Hot Hula Fitness</td>
<td>1</td>
<td></td>
<td>Offered As Demand Warrants Hula Fitness incorporates traditional Polynesian drum beats as well as Hip Hop and Reggae music while performing dance movements from the South Pacific Islands. These movements give emphasis to core training and strengthening of the larger muscle groups. This unique and exciting exercise class encourages positive well-being and physical health.</td>
<td>FLPA F130K.</td>
<td>0 + 3 + 0</td>
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</tbody>
</table>
RECR F130V  Beginning Swing Dance  
1 Credit  
Offered As Demand Warrants  
Introduction to several forms of swing dance. Learn swing dance principles, techniques and steps to build a foundation for future learning and enjoyment. Dances will include Four Count (Country) Swing, East Coast Swing, West Coast Swing, and Hustle among others.  
Prerequisites: RECR F130V; or RECR F130E.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F130Y  Beginning Tap Dance  
1 Credit  
Offered As Demand Warrants  
An opportunity for students to explore tap dance and develop an understanding and practice of movement skills basic to tap dance of America. Students will learn the basic steps while focusing on rhythm and coordination. A variety of tap styles will be introduced.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F130Z  Intermediate Swing Dance  
1 Credit  
Offered As Demand Warrants  
Instruction at the intermediate level of swing dance. Learn intermediate level swing dance techniques and steps, and prepare for more advanced future dance learning and enjoyment. Dances will include Four Count (Country) Swing, East Coast Swing, Single Count Swing, West Coast Swing and Hustle.  
Prerequisites: RECR F130V; or RECR F130E.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140A  Beginning Fencing  
1 Credit  
Offered As Demand Warrants  
Beginning classical Italian style fencing, stresses form and bladework for both defense and offense. This style is difficult to learn, but when mastered is extremely effective.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140B  Intermediate Fencing  
1 Credit  
Offered As Demand Warrants  
Learn the only 'Western Style' martial art, fencing. Like the oriental martial arts, there are intermediate classical Italian style fencing, stresses form and bladework for both defense and offense. This style is difficult to learn, but when mastered is extremely effective.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140C  Advanced Fencing  
1 Credit  
Offered As Demand Warrants  
Advanced classical Italian style fencing, stresses form and bladework for both defense and offense. This style is difficult to learn, but when mastered is extremely effective.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140D  Beginning Pistol Marksmanship  
1 Credit  
Offered As Demand Warrants  
Knowledge, skills and attitudes necessary for owning and using a pistol safely and to advance through the NRA marksmanship program. Pistal parts, operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140E  Advanced Pistol Marksmanship  
1 Credit  
Offered As Demand Warrants  
Intermediate knowledge, skills and attitudes necessary for owning and using a pistol safely and to advance through the NRA marksmanship program. Pistal parts and their operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140F  Advanced Fencing  
1 Credit  
Offered As Demand Warrants  
Advanced classical Italian style fencing, stresses form and bladework for both defense and offense. This style is difficult to learn, but when mastered is extremely effective.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140H  Beginning Rock Climbing  
1 Credit  
Offered As Demand Warrants  
Introduction to rock climbing, knots, risk evaluation, gear, rope skills, belaying, rappelling, jumaring, prusiking and top rope techniques.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140J  Intermediate Rock Climbing  
1 Credit  
Offered As Demand Warrants  
Intermediate rock climbing, knots, risk evaluation, gear, rope skills, belaying, rappelling, jumaring, prusiking and top rope techniques.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140L  Technical Climbing  
1 Credit  
Offered As Demand Warrants  
Introduction to high-angle technical climbing, top-rope rock and ice skills, movement on rock and ice, rope work, anchor systems, climbing ethics.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140M  Introduction to Fly Fishing and Fly Tying  
(a)  
1 Credit  
Offered As Demand Warrants  
Stream, river, pond, and lake dynamics; fish anatomy, behavior, and life history; aquatic insects; and habitat and species of fish and insects; correlate limnology to fly selection and fishing strategy. Fall Fly Fishing: Interior Alaska limnology, entomology, and how they relate to fly-fishing. Fly-fishing as a medium to present college-level scientific concepts to students. Spring Fly Fishing: The art and science of fly casting, fishing and tying.  
Lecture + Lab + Other: 0 + 3 + 0  
RECR F140N  Alaskan Fly Fishing and Tying  
(a)  
1 Credit  
Offered As Demand Warrants  
The art and science of fly casting, fishing and tying.  
Lecture + Lab + Other: 0 + 3 + 0
RECR F140Q  Tennis
1 Credit
Offered As Demand Warrants
Instruction and practice activities in tennis.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140R  Billiards
1 Credit
Offered As Demand Warrants
Basic billiards skill set, strokes and using "English" on the cue ball. Focus on cutthroat, eight ball and nine ball using BCA rules.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140T  Beginning Golf
1 Credit
Offered As Demand Warrants
Instruction and practice activities at beginning golf.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140U  Intermediate Golf
1 Credit
Offered As Demand Warrants
Instruction and practice activities in intermediate golf.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140V  Bowling
1 Credit
Instruction and practice activities in bowling.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140W  Kayaking
1 Credit
Offered As Demand Warrants
Instruction and practice activities at beginning through advanced kayaking.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140Z  Canoeing
1 Credit
Offered As Demand Warrants
Instruction and practice activities at beginning through advanced canoeing.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150A  Beginning Aikido
1 Credit
Aikido is a modern Japanese martial art that teaches coordination of mind and body to develop calmness in action and the strongest human condition. Includes KI extension exercises, basic rolling and falling, KI testing, and basic arts of self-defense.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150B  Intermediate Aikido
1 Credit
Offered As Demand Warrants
Concentrates on learning to lead the KI development exercises. Breathing, movement, visualization techniques and moving meditation to teach how mind and body are interconnected. Advanced variations of the six basic self-defense arts, advanced rolling and falling, Jo kata and individual and paired Bokken movements.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150C  Advanced Aikido
1 Credit
Offered As Demand Warrants
Instruction and practice in martial arts and combative activities at beginning through advanced levels including (but not limited to) boxing, aikido, karate and tae kwon do.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150D  Beginning Karate
1 Credit
Offered As Demand Warrants
Introduction to Shotokan karate, learning basic blocks, kicks and punches and defenses moves. Kata and kumite introduced. History and philosophy discussed.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150E  Intermediate Karate
1 Credit
Offered As Demand Warrants
Instruction and practice in intermediate karate.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150F  Advanced Karate
1 Credit
Offered As Demand Warrants
Instruction and practice in advanced karate.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150G  Beginning Kung Fu/Jiujitsu/Tae Kwon Do
1 Credit
Offered As Demand Warrants
Emphasis on technique and conditioning. Beginning stances and etiquette. The three basic katas. Partner work, training in stretching, conditioning, and breath control. Both self-defense and sporting applications. Course will cover the eight Kung Fu animal systems. Activities will include but are not limited to: warm-ups, stretching, kicking, punching, kata, and partner work.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150H  Intermediate Kung Fu/Jiujitsu/Tae Kwon Do
1 Credit
Offered As Demand Warrants
Emphasis on technique and conditioning. Intermediate stances and etiquette will be covered, along with an understanding of intermediate techniques and some of their applications. Partner work will be taught, along with training in stretching, conditioning, and breath control. Both self-defense and sporting applications. Will cover the eight Kung Fu animal systems. Activities will include but are not limited to: warm-ups, stretching, kicking, punching, kata, and partner work.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150J  Advanced Kung Fu/Jiujitsu/Tae Kwon Do
1 Credit
Offered As Demand Warrants
Instruction and practice in advanced movements, weapons and martial arts certificate promotions.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150K  Beginning Tai Chi
1 Credit
Offered As Demand Warrants
Instruction and practice in beginning tai chi.
Lecture + Lab + Other: 0 + 3 + 0
RECR F150L  Intermediate Tai Chi
1 Credit
Offered As Demand Warrants
Instruction and practice in intermediate tai chi.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150M  Advanced Tai Chi
1 Credit
Offered As Demand Warrants
Instruction and practice in advanced tai chi.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150N  Beginning Japanese Iaido and Swordsmanship
1 Credit
Offered as Demand Warrants
The curriculum is based on the Muso Jikiden Eishin Ryu style of Iaido. This particular curriculum follows the techniques and teachings and Iwata Norikazu Sensei, as administered by the Roshukai organization of Japan, and promoted and taught by the British Eikoku Rosh branch in the UK.
Lecture + Lab + Other: 0 + 3 + 0

RECR F150Q  Intermediate Tennis
1 Credit
Offered as Demand Warrants
Instruction and practice in tennis at the intermediate level, building improved consistency and increasing confidence with strokes.
Prerequisites: RECR F140Q.
Lecture + Lab + Other: 0 + 3 + 0

RECR F160B  Varsity Athletics
1 Credit
Offered As Demand Warrants
Instruction and practice in varsity athletics.
Lecture + Lab + Other: 0 + 3 + 0

RECR F160C  Ultimate Frisbee
1 Credit
Offered As Demand Warrants
Ultimate Frisbee, including catching and throwing the disc as well as both offensive and defensive strategies.
Lecture + Lab + Other: 0 + 3 + 0

RECR F160D  Volleyball
1 Credit
Offered As Demand Warrants
Skills of volleyball, game rules, plays and terminology.
Lecture + Lab + Other: 0 + 3 + 0

RECR F160E  Beginning Archery
1 Credit
Offered As Demand Warrants
Designed for the beginning through the intermediate archer. Use of recurve or compound bows. Current Olympic-style shooting methods along with different styles of target and field archery.
Lecture + Lab + Other: 0 + 3 + 0

RECR F160F  Introduction to Mountaineering (a)
2 Credits
Offered As Demand Warrants
This course is designed to introduce the student to the sport of mountaineering.
Lecture + Lab + Other: 0 + 6 + 0

RECR F160M  Advanced Fly Fishing and Fly Tying
1 Credit
Offered As Demand Warrants
Building on RECR F140M, students will learn how to more accurately use a fly rod, tie big-game fishing knots, construct furlled leaders, and plan fly fishing trips, as well as how build and create fishing flies using advanced techniques. Information on Alaskan freshwater fish, habitat, entomology, and stream ecology will be covered as applicable.
Prerequisites: RECR F140M or RECR F140N.
Lecture + Lab + Other: 0 + 3 + 0

RECR F170A  Beginning Ice Hockey
1 Credit
Offered As Demand Warrants
Beginning skating, passing, shooting, and team play. Power play and penalty kill. Practice game situation plays: odd man rushes, below the goal line play, and positional play. The sport of ice hockey in a group environment.
Lecture + Lab + Other: 0 + 3 + 0

RECR F170B  Intermediate Ice Hockey
1 Credit
Offered As Demand Warrants
Intermediate skating, passing, shooting, and team play. Power play and penalty kill. Practice game situation plays: odd man rushes, below the goal line play, and positional play. The sport of ice hockey in a group environment.
Lecture + Lab + Other: 0 + 3 + 0

RECR F170C  Advanced Ice Hockey
1 Credit
Offered As Demand Warrants
Advanced skating, passing, shooting, and team play. Power play and penalty kill. Practice game situation plays: odd man rushes, below the goal line play, and positional play. The sport of ice hockey in a group environment.
Lecture + Lab + Other: 0 + 3 + 0

RECR F170D  Beginning Cross-country Skiing
1 Credit
Offered As Demand Warrants
Instruction and practice in beginning cross-country skiing.
Lecture + Lab + Other: 0 + 3 + 0

RECR F170E  Intermediate Cross-country Skiing
1 Credit
Offered As Demand Warrants
Instruction and practice in intermediate cross-country skiing.
Lecture + Lab + Other: 0 + 3 + 0

RECR F170G  Introduction to Ski Mountaineering
1 Credit
Offered As Demand Warrants
Safe methods of winter travel in Alaska. Snowshoeing, skiing, gear and clothing, avalanche safety, climbing crevasse rescue skills, glaciers, winter camping skills, first aid.
Lecture + Lab + Other: 0 + 3 + 0

RECR F170M  Curling
1 Credit
Offered As Demand Warrants
Instruction and practice in curling.
Lecture + Lab + Other: 0 + 3 + 0
RECR F170N  Introduction to Winter Camping
1 Credit
Offered As Demand Warrants
This course introduces students to outdoor adventure, travel and camping in Alaska while teaching fundamental outdoor survival skills. This course is designed to equip students with the necessary skills and knowledge to effectively and safely navigate with a map and compass, snowshoe, cross country ski, and camp in a wide variety of Alaskan conditions.
Prerequisites: Instructor permission required.
Lecture + Lab + Other: 1 + 0 + 0

RECR F170P  Introduction to Arctic Backpacking
1 Credit
Offered As Demand Warrants
Designed to introduce students to the art of backpacking the Arctic: route planning, food preparation, gear choices, and emergency preparedness leading to a week-long Arctic backpacking trip. Many of the Leave No Trace camping ethics that are important while backpacking in the Arctic will be addressed.
Lecture + Lab + Other: 0 + 0 + 3

RECR F170Q  Introduction to Dog Mushing
1 Credit
Offered As Demand Warrants
This course is designed for students who have little to no experience in dog mushing and are interested in learning the basics of dog sledding in Alaska. Topics to be covered include: Techniques for operating a sled dog kennel; Introduction to sled dog management and maintenance; Hands-On Instruction on how to hook up and drive a team of 3 to 4 sled dogs; and offers an extended mushing experience. Must be enrolled with the Black Spruce Dog Sledding.
Lecture + Lab + Other: 0 + 3 + 0

RECR F180A  Expedition Rock Climbing
1 Credit
Offered As Demand Warrants
This course is designed to take students who already have a grasp of the basics of rock climbing to the next level. Students will travel to a designated location in order to develop the ability to sport lead outside, and gain working knowledge of the fundamental concepts of placing removable rock protection (trad gear) and doing practice leads while placing trad gear in the rock. Students will also learn crack climbing movement techniques such as hand jams and foot jams.
Prerequisites: RECR F140H or RECR F140J.
Lecture + Lab + Other: 0 + 3 + 0

RECR F180B  Introduction to Expedition Kayaking
1 Credit
Offered As Demand Warrants
Designed to introduce students to the art of expedition tripping with inflatable kayaks with a float on primarily Class I and II water. The students will be involved with all aspects of planning and executing this awesome wilderness trip. Food and transportation is included in the field fee.
Lecture + Lab + Other: 0 + 3 + 0

Religion (RELG)

RELG F110  Isaac v Ishmael: The Israeli-Palestinian Conflict
1 Credit
Offered As Demand Warrants
This course investigates the strife in its interlocking historical, political, religious, ethnic and archaeological dimensions. Competing claims to the land are scrutinized through the prisms of Judaism and Islam, the history, and other ideological movements.
Lecture + Lab + Other: 1 + 0 + 0

RELG F111  Rebellious Women of the Bible
1 Credit
Offered As Demand Warrants
A literary and sociological exploration into negative portrayals of the feminine within the Old and New Testament texts, including their original Ancient Near Eastern and Mediterranean cultural contexts as well as key interpretive traditions throughout history.
Lecture + Lab + Other: 1 + 0 + 0

RELG F112  Dealing with Demons and Death: Magic in Ancient Cultures
1 Credit
Offered As Demand Warrants
An exploration into ancient traditions of magic as evidence by Mesopotamian, Egyptian, Biblical and Graeco-Roman texts and artifacts, focusing upon their rationales, methods, efficacy and legitimacy with respect to variously preventing, mitigating or invoking harmful and destructive forces.
Lecture + Lab + Other: 1 + 0 + 0

RELG F113  The Biblical Environment: Human Ecology in Ancient Israel
1 Credit
Offered As Demand Warrants
An integrative survey of Ancient Israel’s geographic and ecological features with respect to how they influence and were impacted by human efforts and energies. This course will examine textual sources as well as archaeological materials on behalf of reconstructing and comprehending such cultural ecosystems.
Lecture + Lab + Other: 1 + 0 + 0

RELG F114  The Bible in the Quran
1 Credit
Offered As Demand Warrants
An inquiry into the manners and motivations by which Islam appropriated and reconfigured biblical traditions in order to meet its own theological, political, economic, and social needs/interests. What did Muhammad and the earliest Muslims know about the Ahl al-Kitab (“People of the Book”)? From where and whom did they acquire their knowledge? This course also considers the ramifications (historical and contemporary) of scriptural traditions between Islam, Christianity, and Judaism.
Lecture + Lab + Other: 1 + 0 + 0
Rural Development (RD)

RD F100  The University Experience  (a)
3 Credits
Designed to serve as an academic, cultural, and social transition to the UAF campus. Through learner-centered education and emphasis on positive self-concept theories, RD F100 will provide an opportunity to build on personal strengths and skills, as well as learning to take advantage of those resources and support programs which will serve rural and Alaska Native students and aid in a successful transition to college life.
Lecture + Lab + Other: 3 + 0 + 0

RD F110  Alaska Native Claims Settlement Act: Land Claims in the 21st Century  (a)
1 Credit
Offered Fall
Familiarize students with the land claims process and important Alaska Native Claims Settlement Act content, with focus on contemporary situations and explanation of land claims processes ongoing or recently completed in locations outside Alaska.
Cross-listed with ANS F112.
Lecture + Lab + Other: 1 + 0 + 0

RD F113  Indigenous Peoples and International Laws  (a)
1 Credit
Offered Spring Odd-numbered Years
Familiarize students with international law and its importance for Indigenous Peoples. Special emphasis on international legal instruments of importance for Alaska Natives.
Cross-listed with ANS F113.
Lecture + Lab + Other: 1.5 + 0 + 0

RD F114  Indigenous Peoples and North American Legal Systems  (a)
1 Credit
Offered Spring Even-numbered Years
Familiarize students with domestic law and how it affects Indigenous Peoples’ governance in the United States. Special emphasis on the relationship between Tribal legal systems and those of the state and federal governments. Examination of how law is made and why Tribal laws differ from those in neighboring jurisdictions. Course uses asynchronous online delivery.
Cross-listed with ANS F114.
Lecture + Lab + Other: 1.5 + 0 + 0

RD F200X  Rural Development in the North  (s, a)
3 Credits
Offered Fall
Examines sustainable community development efforts in Alaska and the circumpolar North. Provides an overview of community development processes and case studies with an emphasis on indigenous communities and peoples.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

RD F225  Communicating for Rural Development  (a)
3 Credits
Offered Spring
Oral and written communications for rural development practitioners. In this course students will practice four types of oral and written communications: business presentations and business and technical writing; academic presentations and writing; policy presentations and legal and policy writing; and presenting and writing for community audiences. The course will utilize a current topic in rural development to develop and practice each style of communication. This course is the foundation of the Rural Development communication plan.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

RD F245  Fisheries and Marine Wildlife Development in Rural Alaska  (s, a)
3 Credits
Offered Fall Odd-numbered Years
Introduction to fisheries development issues in rural Alaska communities, including basic concepts, strategies and contemporary cases. Topics include management of salmon and other fisheries, community development quotas and sustainable development efforts. Emphasis on environmental and cultural impacts of fisheries development and how management in marine waters affects inland fisheries.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

RD F250  Grant Writing for Community Development  (a)
1-3 Credits
Offered As Demand Warrants
Basic elements of grant proposals and processes of preparing proposals for governmental and private funding sources. Emphasis on applied skills through preparation of actual grant proposals.
Prerequisite: WRTG F111X.
Lecture + Lab + Other: 1-3 + 0 + 0
RD F250P  Grant Writing for Community Development  
1-3 Credits  
Basic elements of grant proposals and processes of preparing proposals for governmental and private funding sources. Emphasis on applied skills through preparation of actual grant proposals.  
Lecture + Lab + Other: 1-3 + 0 + 0  

RD F255  Rural Alaska Land Issues  (s, a)  
3 Credits  
Offered As Demand Warrants  
Introduction to land and resource management issues affecting rural Alaska. Provides a history of aboriginal use and occupancy of land and an overview of land provisions in the Alaska Native Claims Settlement Act (ANCSA) and the Alaska National Interest Lands Conservation Act (ANILCA). Topics include using maps and land records, Native allotments, navigability, trespass and management of Native lands.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F265  Perspectives on Subsistence in Alaska  (a)  
3 Credits  
Offered As Demand Warrants  
The socioeconomic, cultural, legal and political dimensions of subsistence in Alaska.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F268  Rural Tourism: Planning and Principles  
1-3 Credits  
Introduction to rural tourism planning and principles. Students examine rural tourism attractions and trends, tourism planning and policy formation, quality standards, and cultural and environmental impacts of tourism.  
Cross-listed with ABUS F268.  
Lecture + Lab + Other: 1-3 + 0 + 0  

RD F280  Resource Management Research Techniques  (a)  
3 Credits  
Offered As Demand Warrants  
Overview of standard methods of field-based scientific research conducted by resource management agencies in rural Alaska including elementary statistical concepts, survey techniques and tools used in land and renewable resources research.  
Prerequisites: NRM F101 and BIOL F104X.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F300  Rural Development in a Global Perspective  (W, s, a)  
3 Credits  
Offered Fall  
Relationship between rural communities and the global economy, with an emphasis on sustainable development. Highlights the multiple meanings of "development" and issues of population growth, environmental change, gender and indigenous peoples as they relate to rural development. Includes an introduction to the basic concepts and theories of development. This course will emphasize legal and policy written and oral communication styles.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RD F225; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F315  Tribal People and Development  (s, a)  
3 Credits  
Offered Spring Even-numbered Years  
Impact of socioeconomic development processes on tribal peoples in less developed world societies. Implications of these processes for Alaska Native people.  
Prerequisites: Junior standing.  
Cross-listed with ANS F315.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F325  Rural Development Principles and Practices  (s, a)  
3 Credits  
Offered Fall  
Rural development is both an academic discipline and a professional practice. This course is intended to expose students to key principles and practices of their chosen field. Students are empowered to explore their own definition of rural development, including defining the purpose and objective of development and what role(s) that they aspire to as part of the next generation of rural development leaders. This course will emphasize academic writing and communicating with community audiences.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RD F225.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F340  Community Research Toolbox  
3 Credits  
Offered Spring  
Community research approaches and techniques. Emphasis on the role and need for community-based research and ethical issues associated with it. Students use a hands-on approach to learn about research techniques including interviewing, surveying and utilizing existing data in support of community-based research. This course will emphasize academic writing as well as written and oral communication with community audiences.  
Prerequisites: RD F225.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F350  Community Research in Indigenous Contexts  (O, a)  
3 Credits  
Offered Fall  
Community research approaches and techniques. Emphasis on the role and need for community-based research and ethical issues associated with it. Students use a hands-on approach to learn about oral history documentation, surveys of community assets and needs, and basic community survey techniques.  
Prerequisites: COJO F131X or COJO F141X.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F351  Strategic Planning and Decision Making  (a)  
3 Credits  
The ability to plan strategically is fundamental to the success of organizations and communities alike. Rural leaders, in particular, must be incredibly adept at making strategic decisions about how to achieve desirable outcomes with limited human and financial resources. This course takes a practitioner approach to equipping students with basic knowledge of strategic planning processes as well as opportunities to engage with proven tools from the field. This course will emphasize business and technical writing and include student moderated discussions.  
Prerequisites: RD F300; RD F325; and junior standing.  
Lecture + Lab + Other: 3 + 0 + 0
RD F352 Rural Business Planning and Proposal Development (a) 3 Credits Offered Spring Provides undergraduate students with an understanding of the principles and processes involved in strategic planning, business planning and proposal development with the focus on applications in rural Alaska. Focus is on meeting the unique planning needs of rural Alaska communities and organizations. This course emphasizes business and technical writing.
Prerequisites: WRTG F111X; RD F225.
Lecture + Lab + Other: 3 + 0 + 0

RD F400 Rural Development Internship (a) 3 Credits Structured experience in an appropriate agency or corporate setting. Student and instructor work collaboratively to identify appropriate internship. Intended to provide students with on-the-job experience to enhance skills acquired via course work. Approved internship position required and student must discuss internship position with their advisor at least one full semester in advance of when they intend to take the course. Enrollment only by prior arrangement with the instructor.
Lecture + Lab + Other: 3 + 0 + 0

RD F401 Cultural Knowledge of Native Elders (h, a) 3 Credits Offered Fall Study with prominent Native tradition-bearers in Native philosophies, values and oral traditions. Traditional knowledge elicited through the cultural heritage documentation process. Analysis of existing interactions between cultural traditions and contemporary American life as experienced by Native elders.
Cross-listed with ANS F401.
Lecture + Lab + Other: 3 + 0 + 0

RD F425 Cultural Resource Issues (s, a) 3 Credits Offered As Demand Warrants An examination of the potential impacts of development projects on cultural systems. Explores data gathering, analytical techniques and use of impact data.
Prerequisites: Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

RD F427 Tribal Contracting and Compacting (a) 3 Credits Offered As Demand Warrants Examines the history of federal Indian policy that led to self-determination tribal contracting and compacting. Public Law 93-638 will be studied and analyzed. Challenging issues that hampered tribal contracting will be identified. Case studies involving both tribal organizations and tribal governments will be studied. Current issues, such as the proposed regionalization of tribes for the purpose of contracting and compacting, will be examined.
Lecture + Lab + Other: 3 + 0 + 0

RD F430 Indigenous Economic Development and Entrepreneurship (a) 3 Credits Offered As Demand Warrants An understanding of the principles, strategies and practices of economic development and entrepreneurship with a focus on indigenous Alaska communities. Focus is on those sustainable economics, through culturally appropriate practices.
Lecture + Lab + Other: 3 + 0 + 0

RD F435 Participatory Policymaking in Tribal, State and Federal Government (a) 3 Credits Offered Fall Odd-numbered Years This course analyzes the policy-making and lobbying processes of the American political system, with a focus on the relationship between tribes, U.S. Congress, federal agencies and the U.S. Supreme Court. Uses comparative case studies of national, state of Alaska and tribal issues, policies and laws impacting rural Alaskans.
Prerequisites: RD F300; senior standing.
Recommended: RD F110.
Cross-listed with ANS F435.
Lecture + Lab + Other: 3 + 0 + 0

RD F450 Managing Rural Projects and Programs (a) 3 Credits Offered Fall Examines appropriate management and accountability approaches for community-based programs and projects, particularly those found in rural and/or cross-cultural contexts. This course emphasizes business and technical writing and oral and written communication with community audiences.
Prerequisites: RD F325; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

RD F451 Human Resource Management for Indigenous Communities (a) 3 Credits Offered Fall Provides an understanding of the principles and processes involved in human resource management especially as they apply within indigenous communities. Focus is on the relevance of human resource management in every unit, project or team, and on the unique human resource management needs of rural Alaska communities and organizations and how they can be met.
Lecture + Lab + Other: 3 + 0 + 0

RD F460 Women and Development (s, a) 3 Credits Offered As Demand Warrants The effect of modernization and development processes on the role of women in a variety of Third World and tribal world contexts as well as the increasingly important "new" role women play in these complex processes.
Cross-listed with WGS F460.
Lecture + Lab + Other: 3 + 0 + 0

RD F462 Rural Health and Human Service Systems (a) 3 Credits Offered As Demand Warrants Examine U.S. federal and state rural health and human service systems with specific emphasis on the tribal system in Alaska. The history, organization, work force, service delivery and financing of the U.S. and Canadian and Alaska systems are examined. Circumpolar challenges and policy issues in rural health and human service systems are explored.
Lecture + Lab + Other: 3 + 0 + 0
RD F465 Community Healing and Wellness (a)  
3 Credits  
Offered Fall  
The history of education and the impact of religion and assimilation policies on the emotional and physical health of Alaska Natives and their communities. Traditional wellness issues and systems will also be researched from a global perspective.  
Prerequisite: Junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

RD F468 Human Development and Social Justice (a)  
3 Credits  
Offered Spring Even-numbered Years  
This course looks beyond the built (or physical) environment to explore community development as a basic human activity. For many communities in the circumpolar North, the ultimate aim of development is to improve the overall quality of life for present and future generations. This course explores how rural communities can, and are, creating positive change in the areas of governance, natural resource management, cultural revitalization, education and health. This course approaches community development as an evolving practice that responds to human, environmental and political changes.  
Prerequisites: RD F300, RD F325, senior standing.  
Lecture + Lab + Other: 3 + 0 + 0

RD F470 The Alaska Native Claims Settlement Act: Pre-1971 to Present  
3 Credits  
Offered Fall  
Overview and analysis of the Alaska Native Claims Settlement Act. An in-depth examination of the land claims movement of the 1960s and resulting legislative process. Firsthand accounts from Native leaders will be featured. Case studies describing challenges of individual Native villages and regions. Contemporary issues facing ANCSA corporations will be examined.  
Prerequisites: Junior standing.  
Stacked with RD F670.  
Lecture + Lab + Other: 3 + 0 + 0

RD F471 Corporate Social Responsibility and Accountability in Rural and Indigenous Contexts (a)  
3 Credits  
Offered Spring Even-numbered Years  
Examination of the concept of corporate social responsibility (CSR) - a view of the corporation and its role in society that assumes a responsibility among firms to pursue goals in addition to profit maximization - and how CSR is played out in rural Alaska and other Indigenous contexts. Uses comparative case studies of international, national and rural Alaska organizational, economic and societal issues with a special emphasis on transnational corporations, ANCSA corporations, tribal enterprises and other businesses in rural Alaska and in other Indigenous contexts.  
Prerequisites: RD F300, senior standing.  
Recommended: RD F110.  
Stacked with RD F671.  
Lecture + Lab + Other: 3 + 0 + 0

RD F474 Applied Community Research  
3 Credits  
Offered Fall  
Development and preliminary groundwork for the rural development senior project. Students will develop a full prospectus and conduct preliminary research for their senior project to be completed in RD F475 Rural Development Senior Project.  
Prerequisites: RD F340; RD F352; senior standing.  
Lecture + Lab + Other: 3 + 0 + 0

RD F475 Rural Development Senior Project (W, a)  
3 Credits  
Offered Spring  
Under faculty supervision, the student will complete a major theoretical, research and/or applied project which relates to the student's applied emphasis area. Students will utilize the appropriate writing and oral communication style for the type of research or project they choose.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RD F474; senior standing.  
Lecture + Lab + Other: 3 + 0 + 0

RD F492 Rural Development Seminar (a)  
1-3 Credits  
Offered Fall  
Various topics of current interest and importance to the rural development majors. Topics announced prior to each offering. Topics may include: indigenous peoples leadership, legislative process, cultural documentation, National Park Service policies, climate change, and/or co-management of natural resources. Students may take up to three Rural Development seminars on different topics for credit with prior approval. Enrollments priority given to rural development majors.  
Lecture + Lab + Other: 1-3 + 0 + 0

RD F492P Rural Development Seminar  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0

RD F600 Circumpolar Indigenous Leadership Symposium (a)  
3 Credits  
Offered Fall  
Intensive face-to-face graduate seminar over a week-long period. Held every fall either in Fairbanks or Anchorage. This is a cornerstone course for all M.A. students in the program. The content focuses on indigenous leadership and includes presentations by practitioners from throughout Alaska and the circumpolar North. It also presents an orientation in depth to the graduate program. This course may be repeated once for elective credit. Note: RD F600 is required of all graduate students in the Rural Development program. May be repeated once for credit.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0

RD F601 Political Economy of the Circumpolar North (a)  
3 Credits  
Offered Fall  
Interrelationships among rural communities in the circumpolar North and global socioeconomic, political and ecological systems. Includes major theoretical advances in our understanding of development in the 20th century. Uses a comparative case study approach to understand rapid socioeconomic and cultural change in the north.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0
RD F608 Indigenous Knowledge Systems  
3 Credits  
Offered Fall  
A comparative survey and analysis of the epistemological properties, world views and modes of transmission associated with various indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.  
**Prerequisites:** Graduate standing.  
**Cross-listed with** CCS F608; ED F608; ANL F608.  
**Lecture + Lab + Other:** 3 + 0 + 0  

RD F612 Traditional Ecological Knowledge (a)  
3 Credits  
Offered Spring  
Examines the acquisition and utilization of knowledge associated with long-term inhabitation of particular ecological systems and adaptations that arise from the accumulation of such knowledge. Attention will be given to the contemporary significance of traditional ecological knowledge as a complement to academic fields of study.  
**Prerequisites:** Graduate standing.  
**Cross-listed with** CCS F612.  
**Lecture + Lab + Other:** 3 + 0 + 0  

RD F625 Community Development Strategies: Principles and Practices (a)  
3 Credits  
Offered Spring  
Provides graduate students with a detailed overview of principles and strategies of community development in rural Alaska and throughout the circumpolar North. Through in-depth case studies, it expands on materials and topics covered in Rural Development undergraduate courses on community development to explore how rural communities in diverse cultural, political and economic setting can build on local assets, skills and capacities to improve the lives of indigenous and other Northern residents.  
**Prerequisites:** Graduate standing.  
**Lecture + Lab + Other:** 3 + 0 + 0  

RD F630 Economic Development Policy and Entrepreneurship in Rural Alaska: Challenges and Opportunities  
3 Credits  
Offered Spring Odd-numbered Years  
This course explores the questions - what does/should economic development and entrepreneurship look like in rural and Native Alaska? What national, state and tribal policies and laws are desirable, given the history and experience of existing ANCSA corporations (and transnational corporations), tribal enterprises and ANCSA corporations, exploring their contradictory purposes from a business standpoint, responsibilities to shareholders and tribal members, transparency and accountability under federal and state laws, U.S. federal trust responsibility, special tax and business exemptions and resulting business strategies for rural and Native Alaska.  
**Prerequisites:** Graduate standing.  
**Recommended:** RD F625.  
**Lecture + Lab + Other:** 3 + 0 + 0  

RD F650 Community-based Research Methods (a)  
3 Credits  
Offered Spring  
This graduate course provides students with opportunities for advanced exploration of community-based research principles and practices. In the course, emphasis is placed on developing a thorough understanding of the community research process from conceptualization to implementation and evaluation. It includes skill development of skills applicable to both quantitative and qualitative research.  
**Prerequisites:** Graduate standing.  
**Lecture + Lab + Other:** 3 + 0 + 0  

RD F651 Management Strategies for Rural Development (a)  
3 Credits  
Offered Spring  
Provides an overview of the management by change and development within indigenous communities in the Circumpolar North. Looks closely at recent management strategies implemented in Alaska such as co-management of renewable resources, land management of Alaska Native corporations, cultural resource management, and the management of Alaska Native tribal governments, corporations and other organizations. Uses comparative case studies and effects of cultural and traditional values on management practices in different northern socio-cultural environments.  
**Prerequisites:** Graduate standing.  
**Lecture + Lab + Other:** 3 + 0 + 0  

RD F652 Indigenous Organization Management (a)  
3 Credits  
Offered As Demand Warrants  
Purposes, structure and methods of management of particularly Northern indigenous organizations. The management of Alaska Native organizations will be compared with formal organizations established by indigenous peoples in other regions of the Circumpolar North. The concept of "indigenous management" will be reviewed, as will perceptions of differences between leadership and management in both western and indigenous settings.  
**Prerequisites:** Graduate standing.  
**Lecture + Lab + Other:** 3 + 0 + 0  

RD F655 Circumpolar Health Issues (a)  
3 Credits  
Offered As Demand Warrants  
Provides a comprehensive overview of major circumpolar health issues affecting Northern residents. Includes an analysis of health and traditional healing practices prior to contact. Examines the emergence of chronic diseases, problems of alcohol abuse and violence, efforts to combine traditional healing practices and Western medicine. Includes environmental health issues, including water, sewer, and food contamination. Overview of health care systems and public health infrastructure in the North.  
**Prerequisites:** Graduate standing.  
**Lecture + Lab + Other:** 3 + 0 + 0
RD F675  Federal Indian Law: Land, Water and Subsistence  
3 Credits
Offered as Demand Warrants
Examination of the history of federal indian law and its implementation in Alaska. Key laws including the Indian Reorganization Act (IRA), Alaska Native Claims Settlement Act (ANCSA) and the Alaska National Interest Lands Conservation Act (ANILCA) are examined in terms of how they have altered the political landscape of Alaska. Indian legislation is explored with special consideration for how different laws have affected the subsistence rights of Alaska Natives and how they affect management of waters in the state. Students consider the future of subsistence, water rights and how these laws affect natural resource access.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

RD F676  Federal Indian Law in Alaska: Tribal Self-governance - Business, Public Safety Protection of Family, 
3 Credits
Offered As Demand Warrants
Examination of the history of federal indian law and its implementation in Alaska. Key laws including the Indian Reorganization Act (IRA), Public Law 83-280, Indian Child Welfare Act (ICWA), Indian Self-Determination and Education Assistance Act (ISDEAA), Indian Civil Rights Act (ICRA) and the Tribal Law and Order Act (TLOA) are examined in terms of how they have altered the political landscape of Alaska. Indian legislation is explored to determine how Native communities exercise self-governance in Alaska. Students consider the development of tribal judicial capacity and pressing issues such as public safety for Native communities in Alaska as well as tribal participation in business and contractual agreements.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

RD F690  Seminar in Cross-cultural Studies 
3 Credits
Offered As Demand Warrants
Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize prior graduate studies and research. Seminar is taken near the terminus of a graduate program.
Prerequisites: Advancement to candidacy and permission of student's graduate committee.
Cross-listed with CCS F690; ED F690; ANL F690.
Lecture + Lab + Other: 3 + 0 + 0

RD F699  Thesis 
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 1-9

Rural Human Services (RHS)

RHS F110  Cross-cultural Bridging Skills  
1 Credit
Offered As Demand Warrants
Issues and impacts relevant to effective cross-cultural communication. Understanding barriers to effective cross-cultural communication in rural settings and development of effective cross-cultural communication skills from a Native perspective. Development of bridging and networking skills that integrate Native values and principles. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 1 + 0 + 0
RHS F115  Issues of Personal Development  (a)  
2 Credits
Dynamics and impacts of personal development issues relevant to the delivery of rural human services focusing on understanding types, application and processes of personal development. Facilitating personal development through processes that integrate or reflect Native values and principles. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F120  Family Systems I  (a)  
2 Credits
Survey of historical forces that exerted influence on Alaska Native families, the impacts of those forces and discussion of their contemporary effects from a Native perspective. Focus on developing options and strategies for developing healthy Native families as the foundation for healthy Native communities. Emphasis on developing the understanding and skills necessary to facilitate development and maintenance of healthy families through healthy individuals. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F130  Processes of Community Change  (a)  
2 Credits
Contemporary foundations of rural social development and relevant issues from a Native perspective. Developing the understanding and skills necessary for facilitating positive individual, family and community development based on an ecological systems approach. Emphasis on developing the skills necessary to identify, develop and mobilize individual, family and community resources in rural Native communities. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F140  Alaska Native Values and Principles  (a)  
1 Credit
Traditional Native values and principles, their applicability to today's world and issues relevant to their integration into today's lifestyles. Developing understanding and skills necessary for facilitating formulation of positive world views within Native individuals, families and communities. Explores the role of spirituality in a variety of Alaska Native cultures. Student must spend three days in intensive study at selected delivery site.
Lecture + Lab + Other: 1 + 0 + 0

RHS F150  Introduction to Rural Counseling  (a)  
2 Credits
Identification and examination of issues relevant to the delivery of rural counseling services focusing on developing the understanding and skills necessary for the effective delivery of rural counseling services. Opportunities for development of basic rural counseling skills with emphasis on integration of Native values and principles and exploring strategies that facilitate positive individual, family, and community growth and development through enhancement of healthy lifestyles in rural Native communities. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F220  Family Systems II  (a)  
2 Credits
The dynamics and issues relevant to personal healing and recovery from a Native perspective focusing on developing the understanding and skills necessary to healing and recovery in Native individuals, families and communities. Emphasis on achieving healthy lifestyles through self-understanding based on truth, grieving and positive proactive repositioning. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F250  Rural Counseling II  (a)  
2 Credits
Differences and similarities between Native and Western counseling skills. Issues relevant to the development and delivery of basic rural counseling skills and services. Focuses on identifying and building on individual, family and community strengths as the foundation for development of intervention strategies. Addresses the importance of integrating Native traditional values and principles into intervention strategies and service delivery. Emphasis on developing and enhancing basic rural counseling skills and short- and long-term intervention strategies. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F260  Addictions: Intervention and Treatment  (a)  
2 Credits
Dynamics, issues, impacts, treatment options and intervention strategies relevant to behavioral and chemical addictions. Understanding addictive processes and developing treatment options and intervention strategies from a Native perspective. Emphasis on development of treatment options and intervention strategies that integrate Native values and principles. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F265  Interpersonal Violence  (a)  
2 Credits
Types, causes and impacts of interpersonal violence focusing on developing an understanding of interpersonal violence and development of treatment options and intervention strategies from a Native perspective. Emphasis on development of treatment options and intervention strategies that integrate Native values and principles. Student must spend one week in intensive study at selected delivery site.
Lecture + Lab + Other: 2 + 1 + 0

RHS F275  Introduction to Recovery and Mental Illness  (a)  
2 Credits
Overview of mental illness and recovery issues. Emphasis on issues for practitioners in small, rural communities in Alaska.
Prerequisites: RHS F150.
Recommended: RHS F250, RHS F115.
Lecture + Lab + Other: 2 + 1 + 0
RHS F285  Case Management  (a)
2 Credits
Identification and discussion of issues, components, procedures, responsibilities, skills and processes for case management in rural settings with diverse populations. Emphasis on case management processes unique to rural and village Alaska and to the fields of mental health, addictions and interpersonal violence. Oral and written communication skills essential to effective case management explored. Student must be willing and able to work independently outside the classroom and in the community.
Lecture + Lab + Other: 2 + 1 + 0

RHS F287  Rural Human Services Practicum  (a)
4 Credits
Personal and professional development, self-analysis and growth. Emphasis on developing the understanding and skills necessary to integrate Native healing theory and problem solving into the delivery of rural human services. Student must be willing and able to work independently outside the classroom and in the community. Taken as part of the final sequence of courses in the Rural Human Services certificate program, practicum provides students with 100 hours of supervised learning experience in an approved rural human service organization/agency.
Lecture + Lab + Other: 4 + 0 + 0

RNS F290  Grief and Healing  (a)
2 Credits
Offered As Demand Warrants
Exploration of the dynamics of grief and healing from an Alaska Native perspective. Special emphasis on Native values and principles focused on developing culturally relevant, understandings, awarenesses and professional skills.
Lecture + Lab + Other: 2 + 1 + 0

Rural Nutrition Services (RNS)

RNS F101  Rural Nutrition and Health Change  (a)
1 Credit
Offered As Demand Warrants
Introduction to healthful nutrition and tools for making health changes in a rural context. A beginning knowledge of healthy foods and activity for improved wellness outcomes. Skill development in meal planning, preparation and portioning, healthy meal makeovers, goal setting and maintenance.
Lecture + Lab + Other: 14 + 0 + 0

RNS F105  Nutrition Science for the Generations  (a)
3 Credits
Offered As Demand Warrants
Basic applied nutrition science concepts in context of the life cycle presented in a culturally relevant framework. Introductory study of macro-and micro-nutrient requirements, food sources and physiologic and metabolic function with focus on relationship with health and change from traditional diets to contemporary Alaska Native diets. Overview of common nutritional problems affecting rural Alaskans.
Lecture + Lab + Other: 0 + 0 + 0

RNS F120  Alaska Native Food Systems  (a)
3 Credits
Offered As Demand Warrants
A comprehensive overview of Alaska Native food systems including harvest methods, nutrient values, cultural, political and economic impacts and changing relationships (spiritual, personal, environmental, community and diet). Traditional common elements of regional diets and nutrients that support health are identified, compared and contrasted with modern diets. Current food system issues are addressed.
Corequisites: RNS F105.
Lecture + Lab + Other: 0 + 0 + 0

RNS F201  Community Nutrition Interventions  (a)
2 Credits
Offered As Demand Warrants
Students learn a broad range of skills for leading culturally relevant nutrition outreach and extension interventions in rural Alaska with attention to learning styles, lesson planning, project design, media and delivery methods. Focus on addressing nutrition and lifestyle changes to promote wellness and prevent nutrition-related diseases.
Prerequisites: RNS F105.
Recommended: RNS F120.
Lecture + Lab + Other: 0 + 0 + 0

RNS F210  Introduction to Rural Nutrition Counseling  (a)
2 Credits
Offered As Demand Warrants
Identification and exploration of issues relevant to rural nutrition counseling services with focus on development of understanding and skills necessary for the effective delivery of culturally competent services. Opportunities for development of basic rural nutrition counseling skills with emphasis on integration of Alaska Native values and principles; and strategies that facilitate positive individual, family and community wellness through healthy lifestyle choices.
Prerequisites: RNS F105.
Recommended: RNS F120.
Lecture + Lab + Other: 0 + 0 + 0

RNS F250  Current Topics in Rural Nutrition Services
1-3 Credits
Various topics of current interest to students studying rural Alaskan community-based nutrition, behavioral health and health services. Topics announced prior to each offering and course may be repeated for credit.
Lecture + Lab + Other: 0 + 0 + 0

RNS F260  Rural Nutrition Practicum  (a)
2 Credits
Offered As Demand Warrants
Provides students a supervised, community-based learning experience as they apply information from the RNS curriculum to nutrition outreach/extension. Focus is on the integration of nutrition science information with development of understanding and skills to provide culturally relevant community outreach/extension to rural Alaskan communities.
Prerequisites: RNS F105.
Corequisite: RNS F201.
Recommended: RNS F120.
Lecture + Lab + Other: 0 + 0 + 0
Russian (RUSS)

RUSS F100A  Elementary Russian 1A  (h)
3 Credits
Offered Fall
An introductory course in the Russian language and culture with an emphasis on the spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F100B  Elementary Russian 1B  (h)
3 Credits
Offered Spring
An introductory course in the Russian language and culture with an emphasis on the spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
Prerequisites: RUSS F100A.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F101X  Elementary Russian I  (h)
5 Credits
Offered Fall
Introduction to language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 750 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

RUSS F102X  Elementary Russian II  (h)
5 Credits
Offered Spring
Introduction to language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 750 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials.
Prerequisites: RUSS F101X.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

RUSS F103  Conversational Russian I  (h)
3 Credits
Offered Spring Odd-numbered Years
Verbal skills improvement. Vocabulary is presented to improve speaking on specific topics. Note: Does not satisfy core curriculum or foreign language major requirements.
Prerequisites: RUSS F101X; RUSS F102X.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F201  Intermediate Russian I  (h)
4 Credits
Offered Fall
Continuation of RUSS F102X. Increasing emphasis on reading ability and cultural materials. Conducted in Russian.
Prerequisites: RUSS F102X.
Lecture + Lab + Other: 4 + 0 + 0

RUSS F202  Intermediate Russian II  (h)
4 Credits
Offered Spring
Continuation of RUSS F102X. Increasing emphasis on reading ability and cultural materials. Conducted in Russian.
Prerequisites: RUSS F201.
Lecture + Lab + Other: 4 + 0 + 0

RUSS F203  Conversational Russian II  (h)
3 Credits
Offered Spring Odd-numbered Years
Oral skills improvement. Vocabulary is presented to improve speaking on specific topics. Does not satisfy core curriculum or foreign language major requirements.
Prerequisites: RUSS F102X.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F292  Russian Seminar
1-8 Credits
Lecture + Lab + Other: 1-8 + 0 + 0

RUSS F301  Advanced Russian  (O, W, h)
3 Credits
Offered Fall
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in Russian.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RUSS F202.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F302  Advanced Russian  (O, W, h)
3 Credits
Offered Spring
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in Russian.
Prerequisites: COJO F131X or COJO F141X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; RUSS F301.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F392  Russian Seminar
1-8 Credits
Lecture + Lab + Other: 1-8 + 0 + 0

RUSS F431  Studies in Russian Culture  (h)
3 Credits
Offered Fall Odd-numbered Years
Study of the cultures of the Russian-speaking world. May be repeated for credit if topic varies.
Prerequisites: RUSS F301; junior standing.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F432  Studies of Russian Literature  (h)
3 Credits
Offered Spring Even-numbered Years
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. May be repeated for credit when topics vary.
Prerequisites: RUSS F302 or equivalent, and at least junior standing.
Lecture + Lab + Other: 3 + 0 + 0
RUSS F476  Russian Culture and Society in the 21st Century  (h)  3 Credits
Offered Spring Even-numbered Years
Study of contemporary Russian culture and society through selected literary texts and media representations; examination of the idea of the "Russian North" and its place in Russian culture; consideration of Russian politics and current events. Students will gain knowledge about present-day Russia and its peoples from a variety of perspectives, sources and media. Russian Studies majors must complete RUSS F202 and Northern Studies majors must complete two ACNS courses.
Prerequisite: WRTG F111X, WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; COJO F131X or COJO F141X; junior standing.
Cross-listed with ACNS F476.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F484  Russian and Soviet Cinema  (h)  3 Credits
Offered Fall Odd-numbered Years
Study of Russian culture and society through the medium of film, focusing on the history of Russian cinema and genres. Films by award-winning directors. Designed to familiarize students with Russian history and culture from 1900s to the present, and present topics in film theory. Readings and topics discussed reflect issues of current interest.
Prerequisite: Junior standing.
Cross-listed with FLPA F484.
Lecture + Lab + Other: 3 + 0 + 0

RUSS F488  Individual Study: Senior Project  (h)  3 Credits
Offered As Demand Warrants
Analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the sixth week of the semester preceding the semester of graduation. Conducted in Russian.
Prerequisites: At least 10 credits in upper division Russian.
Lecture + Lab + Other: 3 + 0 + 0

Science Applications (SCIA)

SCIA F105  Field Biology  2 Credits
Offered Summer
Students will learn some of the techniques that are employed by wildlife biologists to study plants, fish and animals in the field and establish use of the scientific method through a student research project.
Lecture + Lab + Other: 20 + 20 + 0

SCIA F150  Subarctic Horticulture  1 Credit
Offered As Demand Warrants
Soils, plant propagation, disease and insect control, variety selection, fertilization, greenhouse construction and care and gardening techniques. Emphasis on development and care of greenhouses and gardens in the Nome area.
Lecture + Lab + Other: 0 + 3 + 0

SCIA F150P  Subarctic Horticulture  1 Credit
Soils, plant propagation, disease and insect control, variety selection, fertilization, greenhouse construction and care and gardening techniques. Emphasis on development and care of greenhouses and gardens in the Nome area.
Lecture + Lab + Other: 1 + 0 + 0

SCIA F157  Alaska Plants  (n, a)  1 Credit
Offered As Demand Warrants
Introduction to the topics of plant taxonomy and identification with specific reference to common Alaskan plants and vegetation types.
Lecture + Lab + Other: 1 + 0 + 0

SCIA F161  Birds of Alaska  (a)  1 Credit
Offered As Demand Warrants
Biology of birds including behavior, anatomy, physiology, ecology, systematics and field identification.
Lecture + Lab + Other: 1 + 0 + 0

SCIA F162  Mammals of Alaska  (n, a)  1 Credit
Offered As Demand Warrants
Introduction to the mammals of Alaska and their importance to the local ecology and economy from a scientific research standpoint. Emphasis on important and/or common species for study of classification, habitat, life cycle and economic importance.
Prerequisites: Background or interest in general science or natural history.
Lecture + Lab + Other: 1 + 0 + 0

Science Teaching and Outreach (STO)

STO F601  Communicating Science  2 Credits
Offered Fall
This highly interactive course allows students to gain hands-on experience with teaching and communicating science to public audiences. Over the course of the semester, students will lead programs in K-12 school settings, develop a presentation and present their own science to peers. Students will also explore pedagogical theory, and learn how to use active and inquiry-based teaching strategies.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 2 + 0 + 0

STO F602  Mentoring in the Sciences  2 Credits
Offered Fall
This course provides a forum for graduate students to develop their mentoring philosophy and build effective mentoring skills. Effective mentoring can be learned, but not taught. Good mentors are normally produced through years of practice, successes and failures, and no two mentoring situations are alike. This course seeks to provide a discussion and learning environment for accelerating the process of learning to be a mentor. Through discussion of case studies, activities and readings provided in course materials, students will consider mentoring philosophy, articulate it, anticipate challenges and effective solutions to a variety of mentoring issues.
Prerequisites: Graduate Standing.
Lecture + Lab + Other: 2 + 0 + 0
Social Work (SWK)

SWK F103X  Introduction to Social Work  (s)
3 Credits
Introduction to the profession of social work and the human services delivery system. Examines historical development of social work focusing on the knowledge, values and skills that characterize the social worker. Orientation to the context for social work, including the diversity of human needs, human services, social policy and legislation. Services, programs, and career opportunities within rural and urban Alaska, as well as nationally, are discussed.
Prerequisites: SWK F666 or SWK F601.
Lecture + Lab + Other: 3 + 0 + 0

SWK F220  Ethics, Values and Social Work Practice  (s)
3 Credits
The professional nature and meaning of generalist social work practice. Examines the NASW code of ethics. Introduces interpersonal communication and interviewing. Assists students in making decisions about a career in social work.
Prerequisites: SWK F103X.
Lecture + Lab + Other: 3 + 0 + 0

SWK F305  Social Welfare History  (O, s)
3 Credits
Offered Fall
Analysis of social inequality and the U.S. social welfare system by tracing the historical development of government response to social inequality and exploring historical and persisting dilemmas in the provision of social welfare services.
Prerequisites: COJO F131X or COJO F141X; SWK F103X or HIST F100X.
Lecture + Lab + Other: 3 + 0 + 0

SWK F306  Social Welfare: Policies and Issues
3 Credits
Offered Spring
Social policies and how they effect the delivery of social services. Factors influencing development of the current social service system. Analysis of dilemmas that develop in a welfare system attempting to deal with rapid social change. Alternative approaches to the solution of social problems and possible future developments.
Prerequisites: ECON F100X; PS F100X; SWK F103X.
Lecture + Lab + Other: 3 + 0 + 0

SWK F310  Fetal Alcohol Spectrum Disorders
3 Credits
Offered As Demand Warrants
An overview of fetal alcohol spectrum disorders with a particular focus on the needs, issues and programs specific to Alaska.
Lecture + Lab + Other: 3 + 0 + 0

SWK F320  Rural Social Work  (W, a)
3 Credits
Offered Spring
This course examines rural and small community life, its value systems, strengths and capacities, customs, political and economic structures and their implications for the lives of people in rural settings and for generalist social work practice. Special attention is given to differences in intervention and service provision in rural areas, particularly in rural, remote and Alaska Native communities.
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X.
Lecture + Lab + Other: 3 + 0 + 0
SWK F330  Seminar in International Social Work  
3 Credits  
Offered Fall  
International issues related to social work practice and social welfare policy. The focus of the seminar will be on global and international issues related to social and economic justice, distributive justice, and human and civil rights. Specific content is announced at registration. Course may be repeated once for credit when content varies.  
Prerequisites: SWK F103X.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F341  Human Behavior in the Social Environment I  
3 Credits  
Offered Fall  
HBSE is a sequence of two courses that focus on human development in the context of the social environment. Throughout the sequence, a person-in-environment perspective is utilized to interpret the situations of individuals, families and groups. These situations are evaluated in the light of social work values and ethics. The first course in the sequence focuses on the human life cycle viewed in the context of the social environment.  
Prerequisites: PSY F101X; SOC F101X or ANTH F100X; SWK F103X.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F342  Human Behavior in the Social Environment II  
3 Credits  
Offered Spring  
HBSE is a sequence of two courses that focus on human development in the context of the social environment. Throughout the sequence, a person-in-environment perspective is utilized to interpret the situations of individuals, families and groups. These situations are evaluated in the light of social work values and ethics. The second course in the sequence pays attention to those features of culture, the political economy, families, groups groups, formal organizations and communities that encourage human development or constrain and thwart it.  
Prerequisites: PSY F101X; SOC F101X or ANTH F100X; SWK F103X.  
Lecture + Lab + Other: 3 + 0 + 0

(W, s)  
3 Credits  
Examination of theories and research concerning women's issues in the field of social work and in the social welfare system, with particular emphasis on women in poverty and women of color. Contemporary policy issues and strategies of empowerment will be covered.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X or SOC F101X.  
Cross-listed with WGS F350.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F360  Child Abuse and Neglect  
3 Credits  
Offered Spring  
Dynamics, implications and treatments of child abuse and neglect for individuals and families in rural and urban Alaska.  
Prerequisites: Sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F370  Services and Support for an Aging Society  
(s)  
3 Credits  
Offered As Demand Warrants  
An examination of the aging process, theories, political processes, social work generalist intervention and strategies and agency support for the aging population. The rapidly changing social and health issues of older adults are addressed in a multi-disciplinary and multi-cultural approach.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F375  Research Methods in Social Work  
(W)  
3 Credits  
Offered Fall  
Course has a two-fold objective: to help students become critical consumers of research in the social sciences and to allow students to carry out beginning research studies. Course sequentially covers phases of the research process, whether quantitative or qualitative.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F390  Trauma and Wellness: Historical and Contemporary Perspectives  
3 Credits  
Offered As Demand Warrants  
This course explores and critically examines diverse ways of knowing about experiences related to the concepts of trauma and wellness, both individually and collectively, and builds upon wellness strategies that focus on context, culture and lived experience across the lifespan.  
Prerequisites: Sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F440  Social Work Practice with Military Families  
3 Credits  
Explores the history and roles of social work with military families. Ethical concerns that emerge from social work practice with military families are addressed. Military social workers' roles in mental health programs, family advocacy, program administration, and policy making are examined. Addresses the issues that affect military families during times of deployment.  
Prerequisites: SWK F220.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F460  Social Work Practice I  
3 Credits  
Offered Fall  
Development of beginning skills in interviewing and helping processes with individuals and families. Application of intervention strategies, interviewing techniques, case management and advocacy.  
Prerequisites: acceptance to practicum; social work major; senior standing.  
Corequisites: SWK F461.  
Lecture + Lab + Other: 3 + 0 + 0

SWK F461  Practicum in Social Work I  
3,6 Credits  
Offered Fall  
Individual training and practice in a social service agency. Students signing up for 3 credits complete 100 hours; students signing up for 6 credits complete 200 hours of direct practice in an approved agency under the supervision of a field instructor.  
Prerequisites: Social Work major; senior standing; approval from practicum coordinator.  
Lecture + Lab + Other: 2 + 7,15 + 0
SOC F201X  Social Problems and Solutions  (s)
3 Credits
Offered Fall
A study of major contemporary social problems, analysis of factors causing these problems, and discussion of potential solutions. Special emphasis is given to social problems and solutions in Alaska and the circumpolar North.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

SOC F202  Sociology of Popular Culture  (s)
3 Credits
Offered Spring Even-numbered Years
A critical examination of contemporary popular culture in sociological perspective. Introduces debates in the field of cultural sociology with special emphasis on the creation, distribution, consumption, and social impact of popular culture. Themes in course content will vary by semester including popular performances, leisure and entertainment, mass media, humor, food, and fashion.
Recommended: SOC F101X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F242  The Family: A Cross-cultural Perspective  (s)
3 Credits
Analysis of conceptual frameworks in family research, and a cross-cultural comparison of variations in family and kinship structures, both past and present. Examination of contemporary developments in family forms, the dynamic roles and patterns of relationships, and links with other social institutions. Emphasis on how social forces such as gender, race, ethnicity and social class shape the family and experiences of family life.
Prerequisites: SOC F101X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F250  Introductory Statistics for Social Sciences
3 Credits
Offered Spring
Statistics applied to social scientific topics. Includes descriptive statistics, frequency distributions, sampling distributions, elementary probability, estimation of population parameters, hypothesis testing (one and two sample problems), correlation, simple linear regression and one-way analysis of variance.
Prerequisites: MATH F151X or MATH F113X or MATH F251X; PSY F101X or SOC F101X or SOC F201X.
Cross-listed with PSY F250.
Lecture + Lab + Other: 3 + 0 + 0

SOC F263  Social Inequality and Stratification  (s)
3 Credits
Offered Spring
Comprehensive analysis of current sociological debates and diverse theoretical approaches used to address social stratification and inequality. Examines the various dimensions of inequality, including those related to race, class and gender at the local, national and global levels.
Lecture + Lab + Other: 3 + 0 + 0

SOC F280  Contemporary Topics in Sociology  (s)
3 Credits
Offered As Demand Warrants
An in-depth seminar on new and emerging social issues. Course may be repeated for credit when content varies.
Prerequisites: Placement into WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

Sociology (SOC)

SOC F101X  Introduction to Sociology  (s)
3 Credits
An introduction to the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts.
Prerequisites: Placement in WRTG F111X.
Attributes: UAF Core Indv, Soci Culture, UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

SOC F103X  Social Work Practice II
3 Credits
Further development of student’s knowledge of direct practice and beginning skills in groups and community practice. Emphasis on aspects of rural practice.
Prerequisites: SWK F460; social work major; senior standing.
Corequisites: SWK F464.
Lecture + Lab + Other: 3 + 0 + 0

SWK F464  Practicum in Social Work II
3.6 Credits
Continuation of SWK F461; further direct practice experience in an agency. Students signing up for 3 credits complete 100 hours; students signing up for 6 credits complete 200 hours of practice in an approved agency under the supervision of a field instructor. Taken concurrently with SWK F463.
Prerequisites: SWK F460; SWK F461; Social Work major; senior standing.
Lecture + Lab + Other: 2 + 7,15 + 0

SWK F466  Practicum in Social Work III
3.6 Credits
Further direct practice experience in an approved agency under the supervision of a field instructor. Students enrolled in 3 credits must complete 100 hours of practicum. Students enrolled in 6 credits must complete 200 hours of practicum.
Prerequisites: SWK F460; SWK F461; SWK F463; SWK F464; Social Work major; senior standing.
Lecture + Lab + Other: 0 + 7,15 + 0

SWK F470  Substance Abuse Theories and Treatment  (s)
3 Credits
Offered As Demand Warrants
Examination of research and theories of chemical dependency from a social work, systems/ecological framework. Critically examines current theory and practice in terms of effectiveness, cultural appropriateness and validity with vulnerable populations.
Prerequisites: SWK F103X.
Lecture + Lab + Other: 3 + 0 + 0

SWK F484  Seminar in Social Work Practice Areas
3 Credits
Offered As Demand Warrants
Problem areas in social work. Topics vary in different semesters, content announced in class schedule prior to each semester. Course may be repeated for credit when topic varies.
Prerequisites: SWK F103X.
Lecture + Lab + Other: 3 + 0 + 0

SWK F460  Social Work Practice I
3 Credits
Examination of research and theories of chemical dependency from a social work, systems/ecological framework. Critically examines current theory and practice in terms of effectiveness, cultural appropriateness and validity with vulnerable populations.
Corequisites: SWK F103X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F201X  Introduction to Sociology  (s)
3 Credits
Offered Spring
A study of major contemporary social problems, analysis of factors causing these problems, and discussion of potential solutions. Special emphasis is given to social problems and solutions in Alaska and the circumpolar North.
Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

SOC F202  Sociology of Popular Culture  (s)
3 Credits
Offered Spring Even-numbered Years
A critical examination of contemporary popular culture in sociological perspective. Introduces debates in the field of cultural sociology with special emphasis on the creation, distribution, consumption, and social impact of popular culture. Themes in course content will vary by semester including popular performances, leisure and entertainment, mass media, humor, food, and fashion.
Recommended: SOC F101X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F242  The Family: A Cross-cultural Perspective  (s)
3 Credits
Analysis of conceptual frameworks in family research, and a cross-cultural comparison of variations in family and kinship structures, both past and present. Examination of contemporary developments in family forms, the dynamic roles and patterns of relationships, and links with other social institutions. Emphasis on how social forces such as gender, race, ethnicity and social class shape the family and experiences of family life.
Prerequisites: SOC F101X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F250  Introductory Statistics for Social Sciences
3 Credits
Offered Spring
Statistics applied to social scientific topics. Includes descriptive statistics, frequency distributions, sampling distributions, elementary probability, estimation of population parameters, hypothesis testing (one and two sample problems), correlation, simple linear regression and one-way analysis of variance.
Prerequisites: MATH F151X or MATH F113X or MATH F251X; PSY F101X or SOC F101X or SOC F201X.
Cross-listed with PSY F250.
Lecture + Lab + Other: 3 + 0 + 0

SOC F263  Social Inequality and Stratification  (s)
3 Credits
Offered Spring
Comprehensive analysis of current sociological debates and diverse theoretical approaches used to address social stratification and inequality. Examines the various dimensions of inequality, including those related to race, class and gender at the local, national and global levels.
Lecture + Lab + Other: 3 + 0 + 0

SOC F280  Contemporary Topics in Sociology  (s)
3 Credits
Offered As Demand Warrants
An in-depth seminar on new and emerging social issues. Course may be repeated for credit when content varies.
Prerequisites: Placement into WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0
### Sociology (SOC)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>SOC F301</td>
<td>Rural Sociology</td>
<td>3</td>
<td>Sociology of sociological issues using rural communities and rurality as examples. Emphasis on issues of social justice and inequality. Part of focus is on rural communities of Alaska and the North.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F303</td>
<td>Early Sociological Thought</td>
<td>3</td>
<td>The major sociological theories of the classical period (19th and early 20th centuries) that have influenced contemporary sociology.</td>
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<td><strong>Prerequisites:</strong> SOC F101X</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F308</td>
<td>Sociology of Race and Ethnicity</td>
<td>3</td>
<td>A sociological analysis of the principles and processes that shape relationships among racial and ethnic groups in Alaska, the U.S. and elsewhere in the world. Focus on the relations among dominant and subordinate groups in these societies, using sociological theory to understand the structural factors that shape intergroup relations.</td>
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<td><strong>Prerequisites:</strong> SOC F101X; SOC F201X; SOC F263.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F309</td>
<td>Urban Sociology</td>
<td>3</td>
<td>Origin and development of urban society as an industrial-ecological phenomenon; the trends of migration and metropolitanism with futuristic implications; and the rural-urban dichotomy in the Alaskan context.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F310</td>
<td>Sociology of Aging</td>
<td>3</td>
<td>A sociological analysis of the process of aging in the U.S., Alaska and globally, with special attention on structural inequality and social justice issues.</td>
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<td><strong>Prerequisites:</strong> SOC F101X; junior standing.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F320</td>
<td>Sociology of Gender</td>
<td>3</td>
<td>Comprehensive survey of sociological inquiry and feminist revisions for studying gender in U.S. society and culture. Interrogates the meanings of gender and the interactional, cultural, organizational and institutional arrangements that underlie the social construction of gender and gender inequality.</td>
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<td><strong>Recommended:</strong> One social sciences course.</td>
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<td><strong>Cross-listed with WGS F320.</strong></td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F330</td>
<td>Social Psychology</td>
<td>3</td>
<td>Analysis of intergroup relationships in terms of process and value orientation, their influences on the personality, and aspects of collective behavior on group and person. Aspects of social interaction that have cultural and intercultural variation. Also offered through eLearning &amp; Distance Education.</td>
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<td><strong>Prerequisites:</strong> PSY F101X or SOC F101X; SOC F373 or PSY F245.</td>
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<td><strong>Cross-listed with PSY F330.</strong></td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F333</td>
<td>Human Sexualities Across Cultures</td>
<td>3</td>
<td>Exploration of how people in a variety of cultures, both contemporary and historical, construct the meaning and experience of sexuality and express themselves as sexual beings. Interdisciplinary study includes psychology, sociology, anthropology, gender studies and related fields, with particular focus determined by which department is offering the course.</td>
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<td><strong>Prerequisites:</strong> SOC F101X or SOC F201X or PSY F101X or WGS F201X.</td>
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<td><strong>Recommended:</strong> PSY F275 or SOC F373.</td>
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<td><strong>Cross-listed with PSY F333; WGS F332.</strong></td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F335</td>
<td>Deviance and Social Control</td>
<td>3</td>
<td>Analysis of classical and contemporary theoretical perspectives used to understand, explain and control criminal and non-criminal forms of deviance. Emphasis on the social dimensions of the creation of deviant categories and persons, the consequence of societal reactions to selected forms of deviance, and implications for social policy (prevention) and social control (corrections).</td>
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<td><strong>Prerequisites:</strong> SOC F101X; SOC F201X.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>SOC F345</td>
<td>Sociology of Education</td>
<td>3</td>
<td>Theoretical perspectives on various dimensions of the relationship between education and society, including the institutional context of schooling, the impact of schooling on social stratification, and social organization within the school and classroom. Special attention is given to issues of equity and contemporary educational reform efforts.</td>
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<td><strong>Prerequisites:</strong> SOC F101X.</td>
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<td><strong>Cross-listed with ED F345.</strong></td>
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<tr>
<td>SOC F350</td>
<td>Sociology of Childhood</td>
<td>3</td>
<td>Concepts, theories and empirical research in the sociology of childhood. Broad themes include social structure and its consequences for children’s lives, children’s agencies, and the diversity of childhood experiences. Includes an overview of the problems children face, and recommendations for solutions.</td>
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<td><strong>Prerequisites:</strong> WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X.</td>
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<tr>
<td>SOC F373</td>
<td>Research Methods in the Social Sciences</td>
<td>3</td>
<td>Course helps students become critical consumers of research in the social sciences and enables them to develop research proposals. The course covers phases of the research process, which comprises problem formulation, research designs, conceptualization, sampling and ethical issues.</td>
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<td><strong>Prerequisites:</strong> WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X; SOC F101X; SOC F201X; SOC F263.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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</table>
### Social Movements and Social Change (SOC F405)
- **Credits:** 3
- Focus on collective behavior, social change and social movements at the local, national and global levels. Analysis will include historical, technological and legal implications of large-scale social change.
- **Prerequisites:** COJO F131X or COJO F141X.
- **Lecture + Lab + Other:** 3 + 0 + 0

### Work and Occupations (SOC F407)
- **Credits:** 3
- The sociology of work and occupations. Local, regional, national and global industries, work sites and workers will be examined, using sociological theories and concepts. Analysis includes structural issues of inequality in employment practices and work sites.
- **Prerequisite:** COJO F131X or COJO F141X.
- **Lecture + Lab + Other:** 3 + 0 + 0

### Sociology of Law (SOC F435)
- **Credits:** 3
- Addresses the social nature of legal decision-making, the social context of law and the reciprocal relations between law, society and justice. Explores how race, class and gender are implicated in the law, and the role of law in social control, in social change and in our everyday lives.
- **Prerequisites:** SOC F101X; junior standing.
- **Recommended:** SOC F303.
- **Lecture + Lab + Other:** 3 + 0 + 0

### Environmental Sociology (SOC F440)
- **Credits:** 3
- Course considers how political, social and economic factors have come to shape human patterns of interaction with the natural environment. Provides a sociological perspective on environmental problems such as environment and health, disaster, environmental policy, environmental risk, sustainability, human and animal interactions, environmental justice and social movements.
- **Prerequisites:** COJO F131X or COJO F141X; Recomended: one social science course.
- **Lecture + Lab + Other:** 3 + 0 + 0

### Global Issues in Sociological Perspective (SOC F460)
- **Credits:** 3
- A sociological analysis of global issues, with different overarching themes depending on world events and the research interests of the instructor. Issues of global social justice and inequality are explored, and sociological and other theories are applied.
- **Prerequisites:** One social science course.
- **Lecture + Lab + Other:** 3 + 0 + 0

### Qualitative Social Science Research (SOC F480)
- **Credits:** 3
- Offered Spring Odd-numbered Years
- Introduction to classical and contemporary research within the qualitative (or interpretive) paradigm of social science. Discusses the theoretical frameworks, historical traditions, epistemological and ethical issues of qualitative approaches. Uses hands-on experience in the practicalities and excitement of a variety of methods for gathering qualitative data and conducting qualitative analysis.
- **Prerequisites:** WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; one lower-division social science research methods course.
- **Cross-listed with PSY F480.**
- **Lecture + Lab + Other:** 3 + 0 + 0

### Capstone Seminar in Sociology (SOC F490)
- **Credits:** 3
- **Offered Spring**
- Review of the discipline of sociology with a focus on the theoretical perspectives and methodological tools of the discipline, key substantive issues in the field and the role of sociology in contemporary society.
- **Prerequisites:** SOC F303; SOC F373; or other social science research methods course; advanced sociology major or minor.
- **Lecture + Lab + Other:** 3 + 0 + 0

### Research (SOC F698)
- **Credits:** 1-6
- **Lecture + Lab + Other:** 0 + 0 + 0

### Thesis (SOC F699)
- **Credits:** 1-6
- **Lecture + Lab + Other:** 0 + 0 + 0

### Spanish (SPAN)

#### Elementary Spanish 1A (SPAN F100A)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1B (SPAN F100B)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish I (SPAN F101X)
- **Credits:** 5
- **Offered Fall**
- Introduction to the language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words; exploration of the cultural dimension, implicitly through language and explicitly through texts and audiovisual materials.
- **Attributes:** UAF GER Humanities Req
- **Lecture + Lab + Other:** 5 + 0 + 0

#### Elementary Spanish II (SPAN F102X)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1A (SPAN F100A)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1B (SPAN F100B)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

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- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

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- **Credits:** 3
- **Offered As Demand Warrants**
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- **Prerequisites:** SPAN F100A.
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- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1B (SPAN F100B)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

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- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1B (SPAN F100B)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
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#### Elementary Spanish 1B (SPAN F100B)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1A (SPAN F100A)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1B (SPAN F100B)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
- **Lecture + Lab + Other:** 3 + 0 + 0

#### Elementary Spanish 1A (SPAN F100A)
- **Credits:** 3
- **Offered As Demand Warrants**
- Spanish language and culture with an emphasis on spoken and written language. Does not meet Perspectives on the Human Condition requirements, or Foreign Language major or minor requirements.
- **Prerequisites:** SPAN F100A.
SPAN F103  Conversational Spanish I  
3 Credits  
Offered Summer; As Demand Warrants  
Verbal skills improvement. Includes role playing, problem solving and situational conversation. Conducted entirely in Spanish. Note: Does not satisfy core curriculum or foreign language major requirements.  
Prerequisites: SPAN F102X.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F201  Intermediate Spanish I  
3 Credits  
Offered Fall  
Continuation of SPAN F102X. Increasing emphasis on reading, writing and oral ability. Conducted in Spanish.  
Prerequisites: SPAN F102X.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F202  Intermediate Spanish II  
3 Credits  
Offered Spring  
Continuation of SPAN F201. Increasing emphasis on reading, writing and oral ability. Conducted in Spanish.  
Prerequisites: SPAN F201.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F203  SI SI! (Summer Intensive Spanish Immersion)  
3 Credits  
Offered Summer As Demand Warrants  
Prerequisites: SPAN F201; SPAN F202.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F222  Cultures and Civilizations of Spain  
3 Credits  
Offered Spring Even-numbered Years  
Designed to provide students with background in the cultures, history and politics of Spain, as well as continued practice in the target language. Conducted in Spanish.  
Prerequisites: SPAN F202.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F301  Advanced Spanish Conversation and Comprehension  
3 Credits  
Offered Fall  
Focus on increasing speaking and listening comprehension. Discussions, presentations and exercises to enhance verbal competence. Conducted in Spanish.  
Prerequisites: COJO F131X or COJO F141X; SPAN F202.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F302  Advanced Spanish Reading and Literary Comprehension  
3 Credits  
Offered Spring  
An introduction to the understanding and analysis of Hispanic literature, with particular emphasis on the forms of written Spanish. Conducted in Spanish.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SPAN F202.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F311  Advanced Spanish Composition  
3 Credits  
Practice of formal and informal writing styles in Spanish. Focus on vocabulary and stylistic issues.  
Prerequisites: SPAN F202.  
Recommended: WRTG F111X.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F317  Advanced Spanish Grammar  
3 Credits  
Grammatical concepts in Spanish. Focus on more difficult grammatical structures.  
Prerequisites: SPAN F202.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F321  Cultures of Latin America  
3 Credits  
Offered Spring Odd-numbered Years  
Designed to provide students with background in the cultures, history and politics of Latin America, as well as continued practice in the target language. Conducted in Spanish.  
Prerequisites: SPAN F202.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F322  Cultures of Spain  
3 Credits  
Offered Spring Even-numbered Years  
Designed to provide students with background in the culture, history and politics of Spain, as well as continued practice in the target language. Explores the changes and challenges facing contemporary Spanish society. Conducted in Spanish.  
Prerequisites: SPAN F202.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F431  Senior Seminar  
3 Credits  
Offered Fall  
Topics may include literature, arts and cultures of the Spanish-speaking world. Conducted in Spanish. Students may repeat course for credit if topic varies.  
Prerequisites: COJO F131X or COJO F141X; SPAN F302; senior standing.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F432  Studies of Hispanic Literature  
3 Credits  
Offered Spring  
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Note: Course may be repeated for credit if topic varies.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SPAN F302; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

SPAN F482  Selected Topics in Spanish  
3 Credits  
Offered As Demand Warrants  
Intensive course focusing on topics not covered in SPAN F431 or SPAN F432. Note: Course may be repeated for credit if topic varies.  
Prerequisites: SPAN F302; junior standing.  
Lecture + Lab + Other: 3 + 0 + 0
SPAN F488  Individual Study: Senior Project  (h)  
3 Credits  
Offered As Demand Warrants  
Analysis and presentation, in Spanish, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the sixth week of the semester preceding the semester of graduation. Offered normally in the semester preceding the student’s graduation. Conducted in Spanish.  
Prerequisites: At least 10 credits in upper-division Spanish.  
Lecture + Lab + Other: 3 + 0 + 0

Sport Management (SPRT)

SPRT F280  Sport Leadership  
3 Credits  
Offered As Demand Warrants  
Provides leadership theory and develop leadership skills for application internal and external to their sport. Focus on the identification and development of leadership skills/abilities and application within the classroom, a sport and for an on-campus project.  
Cross-listed with LEAD F280; SPRT F280.  
Lecture + Lab + Other: 3 + 0 + 0

SPRT F281X  Introduction to Sport Management  
3 Credits  
Offered As Demand Warrants  
Provides a basic understanding of the methods employed to manage amateur and professional sports organizations and the legal issues involved. Topics such as stadium financing, risk management contracts and human resource management, data collection, public versus private sector labor laws, collective bargaining and drug testing will be examined. Basic management techniques, theory and problems associated with the field sport management are discussed along with history and current trends in sport management.  
Cross-listed with BA F281X.  
Attributes: UAF GER Social Sciences Req  
Lecture + Lab + Other: 3 + 0 + 0

SPRT F481  Entertainment and Sport Event Management  
3 Credits  
Offered As Demand Warrants  
This course is designed to provide the student with knowledge pertaining to the various aspects of managing a public sport and/or entertainment event and their production. Some of the topics discussed include economic impact, sponsorship, risk management, staff and volunteers, customer service, concessions, crowd management and technology. Sport will also be discussed from a unique Alaskan viewpoint, as sport sales can differ from the traditional "professional sporting event" with the unique nature of Alaskan entertainment and sport.  
Prerequisites: BA F343, BA F281X; COJO F141X.  
Cross-listed with BA F482.  
Lecture + Lab + Other: 3 + 0 + 0

SPRT F482  Sport Marketing  
3 Credits  
This course provides a decision-orientated overview of sport marketing management in sport organizations. This course is designed to acquaint students with comprehensive fundamental theories and issues in sport marketing, grounded within traditional marketing principles, and emphasizing unique application to the sport industry. Accordingly, the most basic objectives of the course are to provide you with a broad introduction to sport marketing concepts, the role of sport marketing in society, the role of sport marketing within organizations and the various factors that influence marketing decision-making.  
Prerequisites: BA F343, BA F281X; COJO F141X.  
Cross-listed with BA F483.  
Lecture + Lab + Other: 3 + 0 + 0

SPRT F483  Sport Sales  
3 Credits  
This course is designed to provide the student with knowledge pertaining to the various aspects of sales and ticketing techniques to help them in their pursuit of employment. Some of the topics discussed include ticket distribution, customer service, ticketing software as well as real-life ticket sales campaigns. Sport sales will also be discussed from a unique Alaska viewpoint, as sport sales can differ from the traditional "professional sporting event" with the unique nature of Alaskan entertainment and sport.  
Prerequisites: BA F343, BA F281X; COJO F131X or COJO F141X.  
Cross-listed with BA F483.  
Lecture + Lab + Other: 3 + 0 + 0

SPRT F484  Legal Aspects of Sport and Recreation Management  
3 Credits  
Offered As Demand Warrants  
This course will focus on the three major areas of law that have a direct impact on the management of sport and recreation: tort liability and risk management; contract law; and constitutional law.  
Prerequisites: SPRT F281X.  
Lecture + Lab + Other: 3 + 0 + 0

SPRT F485  Sport and Recreation Facilities  
3 Credits  
Offered As Demand Warrants  
This course provides a foundation for the planning process, operations, and specific design features for various park, recreation, and sports facilities. This course is designed to provide students the opportunity to learn multiple aspects of sports facilities and the management of events held at these facilities.  
Prerequisites: SPRT F281X or SPRT F280.  
Lecture + Lab + Other: 3 + 0 + 0

SPRT F491  Sport Analytics  
3 Credits  
Offered As Demand Warrants  
This course is an introduction to the application of analytical tools and techniques used within the sports industry. It will discuss theory, development, and application of analytics in the sports industry.  
Prerequisites: SPRT F280 or SPRT F281X.  
Lecture + Lab + Other: 3 + 0 + 0
Statistics (STAT)

STAT F200X  Elementary Statistics  (m)
3 Credits
Introduction to concepts and applications of elementary statistical methods. Topics include sampling and data analysis, descriptive statistics, elementary probability, probability and sampling distributions, confidence intervals, hypothesis testing, correlation, and simple linear regression.
Prerequisites: Appropriate placement score; or a grade of B or better in DEV M F105 or DEV M F105N or in all three of DEV M F105G and DEV M F105H and DEV M F105J; or grade of C- or better in a higher-level math course.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 3 + 0 + 0

STAT F300  Statistics
3 Credits
Offered Spring; Fall Odd-numbered Years
A calculus-based course emphasizing applications. Topics include probability, joint and conditional probability, expectation and variance, parameter estimation (method of moments and maximum likelihood), one and two sample hypothesis tests, simple linear regression and one-way analysis of variance. A student may not use STAT F200X and STAT F300 to meet the requirement of a year’s sequence course in statistics.
Prerequisites: MATH F230X or MATH F251X or placement.
Lecture + Lab + Other: 3 + 0 + 0

STAT F401  Regression and Analysis of Variance
4 Credits
Offered As Demand Warrants
Thorough study of multiple regression including multiple and partial correlation, the extra sum of squares principle, indicator variables, polynomial models, model selection techniques and assessment of underlying assumptions. Analysis of variance and covariance for multifactor studies in completely random and randomized complete block designs, multiple comparisons and orthogonal contrasts. Matrix concepts for linear models are taught as needed.
Prerequisites: STAT F200X or STAT F300.
Lecture + Lab + Other: 3 + 3 + 0

STAT F402  Scientific Sampling
3 Credits
Offered Fall
Sampling methods, including simple random, stratified and systematic and one- and two-stage cluster sampling; estimation procedures, including ratio and regression methods; special area and point sampling procedures; optimum allocation. Adaptive and probability sampling; bootstrapping and basic mark-and-recapture.
Prerequisites: STAT F200X or STAT F300.
Lecture + Lab + Other: 3 + 0 + 0

STAT F454  Statistical Consulting Seminar
1 Credit
Offered Spring
Introduction to statistical consulting and data analysis. Emphasis on interaction with researchers and identification of scientific and statistical issues relevant to the research problem. Includes regular class meetings as well as supervised meetings with researchers. Designed to combine mathematical statistics with applications from a variety of fields. Students from any field of study with strong quantitative skills are encouraged to enroll. May be repeated for a total of three credits.
Prerequisites: STAT F200X or STAT F300; STAT F401; and MATH F408.
Stacked with STAT F654.
Lecture + Lab + Other: 1 + 0 + 0

STAT F461  Applied Multivariate Statistics
3 Credits
Offered Spring Even-numbered Years
Estimation and hypothesis testing, multivariate normality and its assessment, multivariate one and two sample tests, confidence regions, multivariate analysis of variance, discrimination and classification, principal components, factor analysis, clustering techniques and graphical presentation. Statistical computing packages utilized in assignments.
Prerequisites: STAT F401.
Lecture + Lab + Other: 3 + 0 + 0

STAT F602  Experimental Design
3 Credits
Offered Fall Even-numbered Years
Constructing and analyzing designs for experimental investigations; completely randomized, randomized block and Latin-square designs, split-plot design, incomplete block design, confounded factorial designs, nested designs, treatment of missing data, comparison of designs.
Prerequisites: STAT F401.
Lecture + Lab + Other: 3 + 0 + 0

STAT F605  Spatial Statistics
3 Credits
Offered Spring Even-numbered Years
Prerequisites: STAT F401; MATH F251X; MATH F252X; MATH F253X.
Lecture + Lab + Other: 3 + 0 + 0

STAT F611  Time Series
3 Credits
Offered Spring Odd-numbered Years
Prerequisites: STAT F401.
Lecture + Lab + Other: 3 + 0 + 0
STAT F621  Distribution-free Statistics
3 Credits
Offered Fall Odd-numbered Years
Bootstrapping, simulation, randomization tests and jackknifing. Classical
distribution-free tests and confidence intervals including the Wilcoxon
test, Kolmororov-Smirnov, Friedman test, Spearman’s and Kendall’s
correlations, Kruskal-Wallis test, Sign tests and Fisher’s exact tests.
The practice of non-parametric regression including methods such as
generalized additive models, polynomial and spline regression,
penalized splines, regression trees, neural nets, gradient boosting,
kernal regression methods, isotonic regression and kriging. Robust
and resistant estimation methods. Non-parametric density estimation.
Survival analysis including Kaplan-Meier and proportional hazards
regression.
Prerequisites: STAT F401.
Lecture + Lab + Other: 3 + 0 + 0

STAT F631  Categorical Data Analysis
3 Credits
Offered Fall Odd-numbered Years
Statistical methods designed for count and categorical data. Contingency
tables. Logistic and related models. Log-linear models. Repeated
categorical responses. Survival data.
Prerequisites: STAT F401.
Lecture + Lab + Other: 3 + 0 + 0

STAT F641  Bayesian Statistics
3 Credits
Offered Fall Even-numbered Years
Bayes’ Rule, Bayesian models for universal data, prior selection
(conjugate and non-conjugate, noninformative and objective priors).
Single parameter and multiparameter models. Hierarchical models,
general linear model and mixed models. Study of posterior simulation
techniques including Markov chain Monte Carlo. Model validation and
model selection. Emphasis on applications, using modern statistical
software packages.
Prerequisites: MATH F252X; MATH F371, MATH F401, MATH F404,
MATH F405, MATH F408 or STAT F651.
Lecture + Lab + Other: 3 + 0 + 0

STAT F642  Bayesian Decision Theory for Resource Management
4 Credits
Offered Spring Even-numbered Years
Application of decision theory to problems in natural resources
management. Students will learn to perform Bayesian calculations and
uncomplicated decision analysis themselves.
Prerequisites: FISH F621 or FISH F630.
Cross-listed with FISH F642.
Lecture + Lab + Other: 2 + 2 + 0

STAT F651  Statistical Theory I
3 Credits
Offered Fall
Probability and distribution of random variables. Conditional probability
and stochastic independence. Distributions of functions of random
variables. Expected values. Limiting distributions. Distributions derived
from the normal distribution. Designed to combine mathematical
statistics with applications from a variety of fields. Students from any
field of study with strong quantitative skills are encouraged to enroll.
Prerequisites: MATH F253X, MATH F314; previous statistics course.
Lecture + Lab + Other: 3 + 0 + 0

STAT F652  Statistical Theory II
4 Credits
Offered Spring Odd-numbered Years
Estimation of parameters. Efficiency and sufficienty. Hypothesis
testing. The Neyman-Pearson paradigm and likelihood ratio tests.
Data summaries. Bootstrap. Comparison of two samples. Linear least
squares. Analysis of categorical data. Bayesian inference. Designed
to combine mathematical statistics with applications from a variety of
fields. Students from any field of study with strong quantitative skills are
encouraged to enroll.
Prerequisites: STAT F651.
Lecture + Lab + Other: 4 + 0 + 0

STAT F653  Statistical Theory III: Linear Models
3 Credits
Offered Spring Even-numbered Years
Best linear unbiased estimation in the general linear model, Gauss-
Markov theory and applications, maximum likelihood estimation for linear
models, multivariate normal distributions, linear regression and analysis
of variance, weighted regression, robust and nonlinear regression and
generalized linear models. Designed to combine mathematical statistics
with applications from a variety of fields. STAT F401 or equivalent course
in applied linear regression modeling is strongly recommended.Student
must take 651 or all the other courses listed.
Prerequisites: STAT F651 or MATH F371; MATH F253X; MATH F314.
Lecture + Lab + Other: 3 + 0 + 0

STAT F654  Statistical Consulting Seminar
1 Credit
Offered Spring
Introduction to statistical consulting and data analysis. Emphasis
on interaction with researchers and identification of scientific and
statistical issues relevant to the research problem. Includes regular class
meetings as well as supervised meetings with researchers. Designed
to combine mathematical statistics with applications from a variety of
fields. Students from any field of study with strong quantitative skills are
encouraged to enroll. May be repeated for a total of three credits.
Prerequisites: STAT F200X or STAT F300; STAT F401; and MATH F408.
Stacked with STAT F454.
Lecture + Lab + Other: 1 + 0 + 0

STAT F661  Sampling Theory
3 Credits
Offered As Demand Warrants
Statistical theory for sampling and sample surveys. Choice of method,
power and sample size considerations, treatment of sampling and non-
sampling biases. Sampling methods based on detectability. Adaptive
sampling. Spatial sampling. Mark and recapture methods. The jackknife,
the bootstrap and resampling plans.
Prerequisites: STAT F200X; STAT F401.
Lecture + Lab + Other: 3 + 0 + 0

STAT F692  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

STAT F692A  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

STAT F692P  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0
STAT F698 Non-thesis Research/Project
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

Trades And Technology (TTCH)

TTCH F101 Machine Woodworking I
2 Credits
Introduction to woodworking power machines (circular saw, jointer, radial arm saw), joints, fasteners, and different stains and finishes used on wood.
Lecture + Lab + Other: 2 + 0 + 0

TTCH F105 Basic Electrical Wiring
1 Credit
Fundamental skills and career opportunities in electrical wiring.
Lecture + Lab + Other: 1 + 0 + 0

TTCH F110 Basic Safety Training for Building Maintenance and Repair
2 Credits
How to care for tools and use them safely, properly and efficiently using HILTI standards, follow OSHA standards to maintain a safe workplace and identify unsafe workplace situations. These standards ensure safety in construction operations. Upon passing the HILTI and OSHA testing standards, certification will be given.
Lecture + Lab + Other: 2 + 0 + 0

TTCH F113 Basic Plumbing
3 Credits
Introduction to methods and materials used in household plumbing. Topics includes pipe fittings and valves, pipe hangers and brackets, copper and plastic pipe fitting and plumbing fixtures.
Lecture + Lab + Other: 3 + 0 + 0

TTCH F117A Four-cycle Engine Repair
1 Credit
Four-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly of a four-cycle engine.
Lecture + Lab + Other: 1 + 0 + 0

TTCH F117B Two-cycle Engine Repair
1 Credit
Two-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly as well as familiarization with tools used in small engine repair.
Lecture + Lab + Other: 1 + 0 + 0

TTCH F120 Refrigeration and Air Conditioning
4 Credits
Fundamentals of refrigeration and air conditioning theory in preparation for further study. Topics include compressors, condensers, evaporators, metering devices and related components. Assumes no previous knowledge.
Lecture + Lab + Other: 4 + 0 + 0

TTCH F125 Introduction to Carpentry for Building Maintenance and Repair
3 Credits
Offered As Demand Warrants
Uses of lumber, commonly used hardware fasteners, types of tools and their uses, how to care for tools and use them safely, properly and efficiently. Building projects are completed which apply what was learned in the classroom. These skills are needed in maintenance positions in private businesses, schools and hospitals and in residential construction and renovation.
Lecture + Lab + Other: 2 + 2 + 0

TTCH F130 Blueprint and Schematic Reading
3 Credits
Basic blueprint and schematic reading skills used by building maintenance personnel. Introduction to machine drawings, building drawings, hydraulic and pneumatic drawings, electrical schematics and symbols, air conditioning and refrigeration drawings, welding and joining symbols.
Lecture + Lab + Other: 3 + 0 + 0

TTCH F131 Mathematics for the Trades
3 Credits
Practical application of mathematics for industry and preparation for union apprenticeship programs, including arithmetic review, ratios and proportion, powers and roots, algebra, geometry and trigonometry. Mathematical applications of basic physics with reference to units of measurement, use of precision measuring tools, measurement of forces, temperature, fluids and electricity.
Lecture + Lab + Other: 3 + 0 + 0

TTCH F132 Building Maintenance Materials
3 Credits
Basic properties, processes and uses of metals and non-metals in tools, machines and building materials. Practical application to building maintenance situations will be emphasized.
Lecture + Lab + Other: 3 + 0 + 0

TTCH F133 Basic Hand and Power Tools
3 Credits
Uses, care and maintenance of hand and power tools. Familiarity and skill development with these tools through construction of shop projects.
Lecture + Lab + Other: 3 + 0 + 0

TTCH F134 Maintenance Safety
1 Credit
Industrial safety including recognizing safety hazards, working safely, handling materials safely, using machinery safely, personal protective equipment, electrical safety, fire protection and government safety regulations.
Lecture + Lab + Other: 1 + 0 + 0

TTCH F136 Basic Shld Metl-arc Weld
3 Credits
Lecture + Lab + Other: 3 + 0 + 0

TTCH F138 Introduction to Electricity for Building Maintenance and Repair
2 Credits
Offered As Demand Warrants
Commonly used materials in the electrical trade. Provides basic understanding of the National Electrical Code, local codes and schematic drawings. Stresses safe installation and correct tool usage. Familiarity and skills are cultivated through projects.
Lecture + Lab + Other: 1.5 + 2 + 0
TTCH F140  Introduction to Plumbing for Building Maintenance and Repair  
2 Credits  
Basic plumbing materials that may be used in any plumbing system, how to use plumbing tools and completing selected projects. Includes using drawings to identify types of plumbing branches and bends, pipefittings, correct plumbing layout aids, and installation applications.  
Lecture + Lab + Other: 1.5 + 2 + 0

TTCH F147  Burner Maintenance and Repair  
1 Credit  
Instruction in troubleshooting 10 common problems, reading manuals, changing parts, setting electrodes, changing nozzles, understanding controls and ordering replacement parts. Also offered as pass/fail as TTCH F147P.  
Lecture + Lab + Other: 1 + 2 + 0

TTCH F147P  Burner Maintenance and Repair  
1 Credit  
Instruction in troubleshooting 10 common problems, reading manuals, changing parts, setting electrodes, changing nozzles, understanding controls and ordering replacement parts.  
Lecture + Lab + Other: 1 + 2 + 0

TTCH F148  Heating Systems for Building Maintenance and Repair  
2 Credits  
Comprehensive instruction for people employed in installation and maintenance of heating systems. Installation and maintenance applications of fuel transfer, theories of combustion, nozzles, combustion chambers, heat exchangers, draft regulators, stacks, controls and sizing of systems.  
Recommended: TTCH F138.  
Lecture + Lab + Other: 1 + 1.5 + 0

TTCH F150  Introduction to Painting for Building Maintenance and Repair  
2 Credits  
Surfaces and surface protection, sealants and fillers, paint categories and application tools. Hands-on projects are completed which apply skills learned in the classroom. These skills are needed in facility maintenance positions in businesses such as schools and hospitals, and in residential construction and renovation.  
Lecture + Lab + Other: 1 + 1.5 + 0

TTCH F151  Hazardous Paint Certification  
1 Credit  
Potential health hazards and information on safety practices will be addressed.  
Lecture + Lab + Other: 1 + 0 + 0

TTCH F199  Practicum  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0

TTCH F214  Heating Systems Design  
3 Credits  
Comprehensive instruction in installation and systems approach to design of heating systems including installation procedures of current systems, heat loss calculation, heat distribution through hydronic and air systems, and boiler and furnace sizing.  
Lecture + Lab + Other: 3 + 0 + 0

TTCH F225  Advanced Carpentry for Building Maintenance and Repair  
3 Credits  
Offered As Demand Warrants  
Expand carpentry skills in measuring, plan reading, site layout skills and working with elevations.  
Prerequisites: TTCH F125.  
Lecture + Lab + Other: 2 + 2 + 0

TTCH F250  Advanced Painting for Building Maintenance and Repair  
2 Credits  
Proper methods for finishing, patching and spray painting drywall. Skills studied in the classroom will be developed in various projects.  
Prerequisites: TTCH F150.  
Lecture + Lab + Other: 1 + 2 + 0

TTCH F282  Selected Topics in Process Unit Design  
4 Credits  
Hands-on execution and application of automated process designs as they evolve from ideas to implementation. Emphasis will be on the expanded study of the purpose, utilization and adaptation of tools, machines, materials and systems to the solutions of automated process unit design problems. Course may be repeated three times for credit.  
Prerequisites: PRT F101; PRT F110.  
Recommended: PRT F130; PRT F140.  
Lecture + Lab + Other: 2 + 4 + 0

TTCH F299  Practicum  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0

TTCH F300  Internship in Technology  
1-3 Credits  
Supervised practical experience working with private industry, government units or agencies in technologies. Opportunities to apply theories and practical application and to observe procedures and operations of the businesses or agencies. May be repeated for a maximum of 9 credits.  
Prerequisites: Upper-division standing.  
Lecture + Lab + Other: 0 + 12 + 0

TTCH F301  Technology and Society  
3 Credits  
Concepts of social change related to the effects of technology on society, and application of the concepts and processes of technology as they evolve from ideas to implementation. Emphasis on expanded study of the creation, use and adaptation of tools, machines, materials and systems to the solutions of problems and the extension of human potential. Available via Independent Learning.  
Prerequisites: Upper-division standing.  
Lecture + Lab + Other: 3 + 0 + 0

TTCH F485  Advanced Technical Experiences: Discipline Area  
1-6 Credits  
Formal technical upgrade training provided by various agencies, manufacturers, businesses or industries which are evaluated on an individual basis and must support the student’s professional objectives. For Bachelor of Technology students only. The National Guide to Educational Credit for Training Programs will be used.  
Prerequisites: Upper-division standing.  
Lecture + Lab + Other: 1-6 + 0 + 0
Tribal Management (TM)

TM F101  Introduction to Tribal Government in Alaska  (a)
3 Credits
An introduction to the study of tribal government and politics in Alaska, including tribal legislative and judicial and administrative responsibilities. Presents key concepts of federal Indian law, self-determination and self-governance for building and enhancing tribal governments.
Lecture + Lab + Other: 3 + 0 + 0

TM F102  Essentials of Tribal Government  (a)
1 Credit
Offered As Demand Warrents
This course will provide an overview of tribal council executive, legislative and judicial responsibilities, including tribal council role in writing laws, basics of tribal sovereignty, sovereign immunity and rights of tribal members.
Lecture + Lab + Other: 1 + 0 + 0

TM F103  Introduction to Tribal Administration  (a)
1 Credit
Offered As Demand Warrents
This course will review the knowledge, skills and abilities required to successfully serve as a Tribal Administrator for Tribal Government within Alaska, including: introduction to Federal Indian Law, basics of Tribal Self-Governance/BIA 638 Contracts programs and funding, overview of tribal financial management, reporting fundamentals and role of the Tribal Administrator.
Lecture + Lab + Other: 1 + 0 + 0

TM F105  Introduction to Managing Tribal Governments  (a)
3 Credits
Tools and methods for the management and oversight of tribal government programs and organizations. Student evaluation includes how well the student affects changes in tribal operations and tribal management.
Prerequisites: Must be familiar with computer and related word processing and spreadsheet programs.
Lecture + Lab + Other: 3 + 0 + 0

TM F110  Tribal Court Development for Alaska Tribes  (a)
1 Credit
An introduction to tribal court development in Alaska. Will focus on a practical understanding of key concepts for developing a tribal court process in rural Alaska. Will explore the differences and relationships between tribal, state, and federal justice systems, including concepts of jurisdiction and due process.
Lecture + Lab + Other: 1 + 0 + 0

TM F111  Children's Topics in Tribal Justice  (a)
1 Credit
Offered As Demand Warrents
Overview of children's cases in tribal justice. Preparation for informed participation in the tribal justice system as it affects children and families. Topics such as the Indian Child Welfare Act, child protection, child custody and tribal adoptions will be addressed.
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0

TM F112  Federal Indian Law for Alaska Tribes  (a)
1 Credit
Offered As Demand Warrants
Introduction to federal Indian law, focusing on the impacts to modern Alaskan tribal governments. Particular attention will be given to the relationship between federal Indian law and tribal justice systems in Alaska.
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0

TM F113  Tribal Code Development  (a)
1 Credit
Offered As Demand Warrents
Focuses on development of written tribal codes, including the importance of incorporating traditional unwritten laws and values into modern written codes. Particular attention will be given to the relationship between written tribal laws and tribal justice systems.
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0

TM F114  Tribal Justice Responses to Community and Domestic Violence  (a)
1 Credit
Offered As Demand Warrents
Focuses on role of the tribal justice system in responding to community and domestic violence, including the use of tribal protective orders under the federal Violence Against Women Act (VAWA).
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0

TM F115  Tribal Court Administration  (a)
1 Credit
Offered As Demand Warrents
Focuses on the administration of tribal courts in Alaska and the role of the tribal court clerk. Key concepts and strategies related to the effective administration and operation of tribal justice systems in Alaska will be discussed.
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0

TM F116  Juvenile Justice in Tribal Court  (a)
1 Credit
Offered As Demand Warrents
Focuses on concepts and strategies impacting juveniles in tribal justice systems. Special focus will be given to issues of juvenile delinquency, strategies in sentencing and community monitoring, as well as, youth courts and community justice theories.
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0

TM F117  Tribal Court Enforcement of Decisions  (a)
1 Credit
Offered As Demand Warrents
Focuses on role of the tribal government and justice system in enforcement of tribal court decisions in rural Alaska, including monitoring of offenders. Key concepts and strategies related to enforcement of tribal court decisions, including writing effective orders and monitoring of offenders, will be discussed.
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0
Introduction to Tribal Natural Resource Management
Introduction to natural resource management, including tribal natural resource management. Examines the basic goals and principles of (tribal) natural resource management, including the roles of traditional knowledge and scientific research in supporting management activities.

Organizational Management for Utilities
Organizational principles and practices involved in managing small water and wastewater facilities in rural Alaskan communities, including an overview of responsibilities, governance authority and accountability.

Operations Management for Utilities
Focus is on specific skills and knowledge that a rural utility manager needs to efficiently oversee a rural utility. Includes understanding what the operator’s duties are and how much time is needed to perform them, as well as related knowledge and skills about safety, scheduling, data collection, public relations, inventory control and contingency planning.

Financial Management for Utilities
The components of financial management needed to successfully oversee a rural utility. Basic procedures and process will be covered, including materials on financial reporting, fund accounting, budgeting, collections, risk management and financial audits.

Personnel Management for Utilities
Tools a rural utility manager needs to keep the work force performing to its fullest. Topics include: personnel policies and procedures; safety policy and programs; selecting and hiring staff; orientation and training; regulations and the law; people, communications and conflict; motivation and management.

Planning for Utilities
Leads the student through the whole planning process as it applies to managing small water and wastewater facilities in rural Alaska communities. Includes why it is important to get the public involved, how to develop water/sewer alternatives and evaluate them, and how to get a construction project started. 

Elective Officials Management for Rural Utilities
Water and wastewater utilities provide critical services to rural Alaska communities. Officials elected to city or tribal councils play a vital role in helping to manage those services. Elected officials have a direct impact on the ability of the utility to operate successfully, be sustainable and qualify for grants. This course covers a broad range of topics essential to council members and the city or tribal staffs who work with them to operate, maintain and manage small rural water and wastewater utilities.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered</th>
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<tbody>
<tr>
<td>TM F171</td>
<td>Introduction to the Indian Reservation Roads Program</td>
<td>1</td>
<td>TM F171; TM F172; TM F173.</td>
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<td>TM F172</td>
<td>Conducting a Rural Transportation Inventory</td>
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<td>TM F171; TM F172; TM F173.</td>
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<td>TM F173</td>
<td>Traffic Monitoring for Rural Transportation</td>
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<td>TM F171; TM F172; TM F173.</td>
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<td>TM F174</td>
<td>Basics of a Good Gravel Road</td>
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<td>TM F171; TM F172; TM F173.</td>
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<td>TM F182</td>
<td>Introduction to NEPA for Rural Transportation</td>
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<td>TM F171; TM F172; TM F173.</td>
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<td>TM F199</td>
<td>Tribal Management Practicum I</td>
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<td>TM F171; TM F172; TM F173.</td>
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<td>TM F201</td>
<td>Tribal Government in Alaska II</td>
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<td>TM F105.</td>
<td>Offered Spring</td>
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<tr>
<td>TM F205</td>
<td>Managing Tribal Governments II</td>
<td>3</td>
<td>TM F105.</td>
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<td>TM F225</td>
<td>Cross Connections: Adapting and Integrating Principles of Management and Conservation</td>
<td>3</td>
<td>TM F105.</td>
<td>Offered As Demand Warrants</td>
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<td>TM F250</td>
<td>Current Topics in Tribal Government</td>
<td>1,2</td>
<td>Various topics of current interest to Tribal Governments and Tribal Management students. Topics announced prior to each offering and course may be repeated for credit.</td>
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<tr>
<td>TM F271</td>
<td>Rural Transportation Planning</td>
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<tr>
<td>TM F272</td>
<td>Finance Applications for Rural Transportation</td>
<td>1</td>
<td>Offered As Demand Warrants</td>
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</tbody>
</table>
URSA F192  Introduction to UAF Research and Creative Scholarship  
1 Credit  
Offered Fall and Spring  
This course provides an overview of the diversity of research at UAF and the opportunities for undergraduate student participation in research and creative scholarship. Students will gain a broad understanding of the significance, process and impact of research as a creative scholarship as conducted across the wide range of disciplines represented on all the UAF campuses.  
Lecture + Lab + Other: 1 + 0 + 0  

URSA F388  Undergraduate Research and Creative Scholarship I  
2-6 Credits  
Offered Fall and Spring  
Provides undergraduate opportunities for student research or creative scholarship in advanced topics beyond typical undergraduate laboratory or studio course offerings across all disciplines. Students must meet with the course instructor in the previous semester to identify a mentor. Students will write a project proposal for further work by the end of the semester and make a poster presentation of their proposal and any preliminary findings.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 1 + 4-10 + 0  

URSA F488  Undergraduate Research and Creative Scholarship II  
2-6 Credits  
Offered Fall and Spring  
Provides undergraduate opportunities for student research or creative scholarship in advanced topics beyond typical undergraduate laboratory or studio course offerings. Students must meet with the instructor in the previous semester to identify their mentor and expected project; ideally students will have completed URSA F388 with the same mentor and have a written project proposal. Students will work on a project in collaboration with their mentor. Students are required to publicly present their work and submit a final report suitable for submission to a discipline-specific journal. Research and creative scholarship areas range across all disciplines. A substantial level of background in the specific discipline, a level commensurate with having achieved junior or senior level, is assumed.  
Prerequisites: URSA F388 and junior-senior standing.  
Lecture + Lab + Other: 1 + 4-10 + 0  

URSA F492  Undergraduate Research and Creative Scholarship Seminar  
1 Credit  
Offered Fall and Spring  
Course provides students a venue for presenting their research and learning about peer research at UAF. Students will have the opportunity to gain and develop oral presentation skills and will gain a broad understanding of the significance, process and impact of research as conducted across the wide range of scholarly disciplines at UAF campuses.  
Lecture + Lab + Other: 1 + 0 + 0  

Veterinary Medicine (DVM)  

DVM F603  Veterinary Science Research and Methods  
1 Credit  
Offered Fall  
This course will illustrate the role of research in furthering the practice of veterinary medicine by presenting a series of lectures from clinical and basic science investigators, faculty and staff who will describe important elements of the research process. The course will also describe possible career opportunities to students in animal health research.  
Prerequisites: Admittance to the professional veterinary program.  
Lecture + Lab + Other: 1 + 0 + 0
DVM F606 Immunology
3 Credits
Offered Fall
Adaptive immune response including its components and activation from cells to molecules, clonal selection, antigen recognition, and discrimination between foreign and self. Concepts applied on the level of intact organisms addressing allergies, autoimmunity, transplantation, tumors and disease (AIDS).
Prerequisites: Admittance to the professional veterinary program.
Lecture + Lab + Other: 3 + 0 + 0

DVM F610 Foundations of Veterinary Medicine
1 Credit
Offered Fall
The first semester of a four-course series in foundations of veterinary medicine. The full course series will encompass topics in ethics, communication, physical exam skills, surgical skills, clinical reasoning and professional development. This course will help you develop the professional skills necessary for the successful practice of veterinary medicine.
Prerequisites: Admittance to the professional veterinary program.
Lecture + Lab + Other: 1 + 0 + 0

DVM F611 Foundations of Veterinary Medicine II
1 Credit
Offered Spring
The second semester of a four-course series in foundations of veterinary medicine. The full course series will encompass topics in ethics, communication, physical exam skills, surgical skills, clinical reasoning and professional development. This course will help you develop the professional skills necessary for the successful practice of veterinary medicine.
Prerequisites: DVM F610.
Lecture + Lab + Other: 5 + 5 + 0

DVM F616 Functional Anatomy
8 Credits
Offered Fall
The course will include an introduction to veterinary anatomy: basic veterinary anatomy, orientation, nomenclature, locomotion apparatus, circulatory system, digestive, respiratory apparatus, lymphatic organs and nervous system of domestic animals. A general explanation of the basic anatomical preparation techniques will be presented to improve the manual skills of the students. The course will place the anatomical knowledge in a clinical context.
Prerequisites: Admittance to the professional veterinary program.
Cross-listed with MSL F618.
Lecture + Lab + Other: 5 + 6 + 0

DVM F618 Veterinary Physiology and Histology
7 Credits
Offered Fall
The course will discuss the histology and physiology of domestic animal organ systems, tissues, cartilage, bone, muscle, arthrology, nervous system, hematopoiesis, lymphatic, cardiovascular, respiratory and digestive systems; the renal system and physiology. The course will help to place the knowledge in histology and physiology in a clinical context.
Prerequisites: Admittance to the professional veterinary program.
Lecture + Lab + Other: 6 + 3 + 0

DVM F619 Veterinary Neurobiology
4 Credits
Offered Spring
Students will learn information on neurologic conditions in domesticated animals. A problem-oriented approach makes it easy to diagnose and treat neurologic problems in domesticated animals. The coverage of disorders by problem, not by established disease diagnosis, emulates how animals present to the veterinary hospital and simplifies the formulation of a correct diagnosis.
Prerequisites: Successful completion of first semester veterinary courses.
Lecture + Lab + Other: 3 + 3 + 0

DVM F623 Veterinary Nutrition and Metabolism
2 Credits
Offered Fall
This course will examine the nutritional needs of major species of veterinary importance. Discussion will revolve around specific nutritional needs as they relate to life-stages and production status of monogastric and ruminant animals. Course topics deal with the classification and function of nutrients, digestive processes (monogastric, ruminant, hind-gut fermenters), evaluation of feedstuffs and feed labels, and principles of disease related to nutritional deficiency as well as nutritional excess.
Prerequisites: Successful completion of first semester veterinary courses.
Cross-listed with MSL F613.
Lecture + Lab + Other: 2 + 0 + 0

DVM F625 Principles of Diagnostic Imaging
2 Credits
Offered Fall
This course will include an introduction to radiographic anatomy of small and large animals; introduction to x-ray, MRI and CT. The course will help to place the anatomical knowledge into clinical context.
Prerequisites: Admittance to the professional veterinary program.
Lecture + Lab + Other: 2 + 0 + 0

DVM F637 Veterinary Bacteriology and Mycology
2 Credits
Offered Fall
This course will discuss bacterial structure, differences between bacterial families, and fungi and their pathogenesis. The basic principles of bacterial and fungal pathogenesis will be presented. Host response to bacterial or fungal infection, immunity and the role of vaccines in disease prevention will be explained. Note: Effective Spring 2019 this course changed from 3 to 2 credits.
Prerequisites: Successful completion of first-semester veterinary courses.
Cross-listed with BIOL F632; MSL F637.
Lecture + Lab + Other: 2 + 0 + 0

DVM F638 Veterinary Parasitology
2 Credits
Offered Spring
Biology of helminth, arthropod and protozoan pathogens of animals with emphasis on common infectious diseases encountered in veterinary practice will be discussed. In addition, the course will discuss treatment and management options for parasitic infections of domestic animals.
Prerequisites: Successful completion of first semester veterinary courses.
Cross-listed with BIOL F634; MSL F638.
Lecture + Lab + Other: 2 + 0 + 0
DVM F639  Veterinary Virology  
2 Credits  
Offered Spring  
This course will explore current concepts in the field of veterinary virology, with an emphasis on the viral structure, viral genetic material and viral replication strategies of various animal viruses. In addition, mechanisms of viral pathogenesis, prevention and treatment of viral infection will be presented.  
Prerequisites: Successful completion of first semester veterinary courses.  
Cross-listed with BIOL F639; MSL F639.  
Lecture + Lab + Other: 2 + 0 + 0

DVM F640  Veterinary Pathology/Biology of Disease I  
5 Credits  
Offered Spring  
This course will discuss basic principles of disease with special emphasis on processes likely to be encountered veterinary practice. We will discuss these topics organized by underlying disease mechanism. The discussions will move from general cell mediated processes to more specific disease mechanisms.  
Prerequisites: Successful completion of first semester veterinary courses.  
Cross-listed with BIOL F640; MSL F642.  
Lecture + Lab + Other: 4 + 3 + 0

DVM F648  Food Animal Production and Food Safety  
2 Credits  
Offered Spring  
This course is designed to provide an understanding of food animal agriculture and food quality assurance. Students will explore contemporary production management systems of traditional and non-traditional food animal species. Animal welfare issues related to the raising of animals for food will be investigated. Students will learn where veterinary medicine fits into the protection of the human food supply.  
Prerequisites: Successful completion of first semester veterinary courses.  
Lecture + Lab + Other: 2 + 0 + 0

DVM F681  Performance Dog Medicine and Surgery  
2 Credits  
Offered Fall  
Designed to provide the student with a basic understanding of the different types of performance dog activities, to identify the unique demands, husbandry, management issues and basic physiological impacts of each category of performance exercise and to gain a basic understanding of commonly observed injuries and their prevention/treatment. This course is designed for veterinarians and veterinary students- the information provided is only partially covered during the regular DVM-curriculum and hence no other prerequisites are required.  
Prerequisites: Good standing in professional veterinary program.  
Lecture + Lab + Other: 2 + 0 + 0

DVM F710  Foundations of Veterinary Medicine III  
1 Credit  
Offered Fall  
The third semester of a four-course series in foundations of veterinary medicine. The full course series will encompass topics in ethics, communication, physical exam skills, surgical skills, clinical reasoning and professional development. Expanded physical examination of companion animals and livestock will be taught with special emphasis on advanced cardiopulmonary auscultation, mammary gland evaluation, otic exam and colic evaluation.  
Prerequisites: DVM F611.  
Lecture + Lab + Other: 0 + 3 + 0

DVM F711  Foundations of Veterinary Medicine IV  
1 Credit  
Offered Spring  
The fourth semester of a four-course series in Foundations of Veterinary Medicine. The full course series will encompass topics in ethic, communication, physical exam skills, surgical skills, clinical reasoning and professional development. Expanded physical examination of companion animals and livestock will be taught, with special emphasis on advanced techniques in reproduction, surgical skills, anesthesia, and patient management.  
Prerequisites: Successful completion of DVM F710.  
Lecture + Lab + Other: 0 + 3 + 0

DVM F714  Preventative Veterinary Medicine  
4 Credits  
Offered Fall  
The course will provide understanding of host/disease/agent interaction and the essential steps in disease outbreak investigation. Clinical and herd-based scenarios will be used for discussion of epidemiologic principles, features of zoonotic disease and specific biosecurity and infectious control issues as they relate to food safety and livestock production.  
Prerequisites: Veterinary medicine student in good standing.  
Lecture + Lab + Other: 4 + 0 + 0

DVM F722  Veterinary Pharmacology  
4 Credits  
Offered Fall  
This course covers basic principles of pharmacology of common drugs and basic mechanisms of action. Individual agents will be introduced as examples. As a medicine course, the proper and effective use of drugs will be reviewed including basics of veterinary therapeutics for selected classes of agents across selected species.  
Prerequisites: Successful completion of all required first year courses in DVM program, including advancement to year two.  
Lecture + Lab + Other: 4 + 0 + 0

DVM F724  Veterinary Bioanalytical Pathology  
6 Credits  
Offered Fall  
Professional veterinary program requirement studying pathology, hematology, biochemistry and cytopathology.  
Prerequisites: Successful completion of first year professional veterinary medical program.  
Lecture + Lab + Other: 5 + 2 + 0
DVM F726  Principles of Imaging Interpretation
2 Credits
Offered Spring
This is the first of a two part series in imaging interpretation. This course covers gastrointestinal, thoracic and cardiac imaging. The second part of the course is held in the fall of the 3rd year at Colorado State (VM728) and will cover equine and small animal musculoskeletal, urinary tract and neurological imaging.
Prerequisites: good standing in professional veterinary program.
Lecture + Lab + Other: 1 + 0 + 1

DVM F733  Principles of Surgery
2 Credits
Offered Spring
This course teaches principles and concepts of general and orthopedic surgery, including aseptic technique, surgical instrumentation, suture patterns, tissue healing and wound management. These topics comprise core material that prepares veterinary students for specific surgery.
Prerequisites: Successful completion of first year veterinary medical program; good standing in professional veterinary medicine program.
Lecture + Lab + Other: 1 + 3 + 0

DVM F737  Principles of Veterinary Anesthesia
3 Credits
Offered Spring
This course is an introduction to the principles of clinical anesthesia. Performing anesthesia requires applying knowledge of chemistry, physics, physiology, pharmacology and equipment in a clinical setting. Anesthetists should strive to create an optimal anesthetic state for each individual patient after careful consideration of the patient’s unique medical and surgical needs. Available anesthetic and support drugs, the anticipated effects of the drugs, the procedure to be performed on the patient and the skill of the anesthetist all impact the management of individual cases. Improving patient comfort by minimizing acute postoperative pain is an important component of clinical anesthesia. It is our intent that this course serves as a foundation that supports and reinforces your knowledge of the basic sciences, and provides you with the opportunity to begin to get a feel for integrating those disciplines into making medical judgments.
Prerequisites: Good standing in the professional veterinary program.
Lecture + Lab + Other: 2 + 2 + 0

DVM F741  Biology of Disease II - Pathology of Organ Systems
4 Credits
Offered Fall
The course will discuss basic principles of disease with special emphasis on organ system diseases most likely to be encountered in veterinary practice. The discussions will move from general cell mediated processes to more specific disease mechanisms in a variety of domestic and exotic species.
Prerequisites: Successful completion of first year of courses in the professional veterinary curriculum.
Lecture + Lab + Other: 3 + 2 + 0

DVM F742  Biology of Disease III - Pathology of Organ Systems II
3 Credits
Offered Spring
The course will discuss basic principles of disease with special emphasis on organ disease likely to be encountered in veterinary practice. We will discuss these topics organized by underlying disease mechanism. The discussions will move from general cell mediated processes to more specific disease mechanisms. The goals for this course are to provide professional veterinary students with disease mechanisms in organs and to enable them to apply this knowledge in subsequent courses of anatomic pathology and clinical skills and ultimately become competent practitioners of the veterinary profession.
Prerequisites: Good standing in the professional veterinary program.
Lecture + Lab + Other: 2 + 2 + 0

DVM F744  Theriogeneoloy
3 Credits
Will familiarize students with reproductive organs of large and small animals: regulation of function, reproductive endocrinology, reproductive cycles and the physiology and pathology of reproduction.
Prerequisites: Satisfactory completion of year 1 and good standing in professional veterinary program.
Lecture + Lab + Other: 2 + 2 + 0

DVM F745  Clinical Sciences I
5 Credits
Offered Spring
This course is an introduction to clinical reasoning and problem solving as a diagnostician. Diagnostic approaches to common medical problems of cardiovascular, urinary and digestive-hepatic systems.
Prerequisites: Second year professional veterinary medicine program student in good standing.
Lecture + Lab + Other: 10 + 0 + 0

DVM F747  Clinical Sciences II
5 Credits
Offered Spring
Continuation of clinical reasoning and problem solving as a diagnostician. Diagnostic approaches to common medical problems of cardiac, pulmonary systems and fluid and electrolyte disorders of small and large animals.
Prerequisites: Second year professional veterinary medicine program; student in good standing.
Lecture + Lab + Other: 10 + 0 + 0

DVM F751  Veterinary Clinical Toxicology
2 Credits
Offered Fall
This course will provide an overview of clinical toxicology relevant to veterinarians.
Prerequisites: Successful completion of all required first year courses in DVM program, including advancement to year two.
Lecture + Lab + Other: 2 + 0 + 0
### DVM F777  Strategies for Establishing and Maintaining Well-being in the Veterinary Profession
1 Credit
Offered Spring
This course will investigate and demonstrate methods for maintaining well-being while managing the stress associated with membership in the Veterinary Profession. Strategies for time management, life balance, nutrition, exercise and recovery will be discussed as means of enhancing well-being and preventing professional burnout which is widespread in the profession today. This course will utilize hands on engagement as well as live and distance discussions with experts in the respective multidisciplinary fields that contribute to well-being.
**Prerequisites:** Good standing in the professional veterinary program.
**Lecture + Lab + Other:** 1 + 0 + 0

### Welding and Materials Technology (WMT)

<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>WMT F101</td>
<td>Introduction to Welding</td>
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<td></td>
<td>Continuation of WMT F101.</td>
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<td>WMT F102</td>
<td>Intermediate Welding</td>
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<td>WMT F103</td>
<td>Welding I</td>
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<tr>
<td>WMT F105</td>
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<tr>
<td>WMT F106</td>
<td>Heat Treating/Metal Finishing/Knife Making I</td>
<td>3</td>
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<td><strong>Prerequisites:</strong></td>
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<td></td>
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<td>WMT F117</td>
<td>Oxy-Acetylene Welding and Cutting</td>
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<td>WMT F130</td>
<td>Shielded Metal Arc Welding</td>
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<td>WMT F140</td>
<td>Metal Fabrication</td>
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<td>WMT F150</td>
<td>Gas Tungsten Arc Welding</td>
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<td>WMT F160</td>
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<td>WMT F180</td>
<td>Metal Fabrication</td>
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<td><strong>Lecture + Lab + Other:</strong></td>
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<td>WMT F206</td>
<td>Heat Treating/Metal Finishing/Knife Making II</td>
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<td><strong>Lecture + Lab + Other:</strong></td>
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<td>WMT F241</td>
<td>Gas Tungsten Arc and Gas Metal Arc Welding</td>
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<td><strong>Lecture + Lab + Other:</strong></td>
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Wildlife (WLF)

WLF F101  Survey of Wildlife Science
2 Credits
Offered Fall
An introduction to wildlife science for research, conservation and management. Lectures, presentations, labs and other outside class activities will familiarize students with the field of wildlife biology and the wildlife profession. Special fees apply.
**Lecture + Lab + Other: 1 + 2 + 1**

WLF F301  Design of Wildlife Studies
3 Credits
Offered Spring
Study designs for wildlife populations and their habitats. Probability theory, finite population sampling, capture-mark-recapture sampling and research design will be examined through lectures, labs and a term project.
**Prerequisites: WLF F101 (may be taken concurrently); MATH F151X (may be taken concurrently) or MATH F122X (may be taken concurrently).**
**Recommended: STAT F200X or STAT F300.**
**Lecture + Lab + Other: 2 + 3 + 0**

WLF F304  Wildlife Internships
1-3 Credits
Practical experience in wildlife management in public or private agencies. Projects are approved by faculty member and supervised by professional agency staff. May not be substituted for courses required for major.
**Lecture + Lab + Other: 1-3 + 0 + 0**

WLF F305  Wildlife Diseases
3 Credits
Offered Spring Odd-numbered Years
Basic concepts of parasitic, infectious, environmental and nutritional diseases. Specific study of Alaska wildlife diseases. Basic necropsy technique and chemical immobilization.
**Prerequisites: BIOL F115X and BIOL F116X.**
**Recommended: BIOL F310.**
**Lecture + Lab + Other: 3 + 0 + 0**

WLF F322  Principles and Techniques of Wildlife Management  (W)
3 Credits
Offered Fall
This course applies ecology to the study and management of animals and their habitats. We will discuss management for consumptive and non-consumptive uses of birds, mammals, reptiles and amphibians.
**Prerequisites: BIOL F371; WLF F101; WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X.**
**Lecture + Lab + Other: 2 + 3 + 0**

WLF F410  Wildlife Populations and Their Management
3 Credits
Offered Fall
Characteristics and ecology of wildlife populations and the knowledge necessary for their wise management. Measures of abundance, dispersal, fecundity and mortality, population modeling, competition and predation, and the management of rare species and their habitats.
**Prerequisites: BIOL F371; calculus course; introductory STAT course; BIOL F471.**
**Lecture + Lab + Other: 2 + 3 + 0**

WLF F421  Ecology and Management of Large Mammals
3 Credits
Offered Fall Even-numbered Years
Identification, taxonomy, distribution, life history and ecology of North American large mammals. Exploration of roles of reproduction, predation, nutrition, habitat alteration and competition in population dynamics of large mammals, and management practices designed for conservation of habitats and populations.
**Prerequisites: BIOL F371; WLF F322.**
**Lecture + Lab + Other: 3 + 0 + 0**

WLF F425  Ecology and Management of Birds  (O)
3 Credits
Offered Spring Even-numbered Years
Ecology of avian populations with a focus on harvest and habitat management for North American birds. Distributions, life-history, population dynamics, and monitoring and research techniques will be considered.
**Prerequisites: BIOL F371; COJO F131X or COJO F141X; WLF F322.**
**Lecture + Lab + Other: 3 + 0 + 0**

WLF F433  Conservation Genetics
3 Credits
Offered Spring
Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.
**Prerequisites: BIOL F371 and BIOL F260.**
**Recommended: NRM F277.**
**Cross-listed with BIOL F433.**
**Stacked with BIOL F633 and WLF F633.**
**Lecture + Lab + Other: 3 + 0 + 0**

WLF F469  Landscape Ecology and Wildlife Habitat  (O)
3 Credits
Offered As Demand Warrants
A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions.
**Prerequisites: BIOL F371; COJO F121X or COJO F131X or COJO F141X.**
**Cross-listed with BIOL F469.**
**Stacked with BIOL F669; WLF F669.**
**Lecture + Lab + Other: 2 + 3 + 0**

WLF F485  Global Change Biology  (W, n, a)
3 Credits
Offered Fall
Causes of climate change, the climate record, and the effects of past and forecast climate change on biophysical systems. Consideration of impacts on plants, animals, ice, and people with an emphasis on Alaska and the Arctic.
**Prerequisites: BIOL F371; CHEM F105X; CHEM F106X; WRTG F111X; WRTG F211X; WRTG F212X; WRTG F213X or WRTG F214X.**
**Cross-listed with BIOL F485.**
**Lecture + Lab + Other: 3 + 0 + 0**
WLF F602  Research Design  
3 Credits  
Offered Fall  
An introduction to the philosophy, performance and evaluation of hypothetical/deductive research in the biological sciences, with emphasis on hypothesis formulation and testing. Each student will develop a research proposal.  
Prerequisite: Graduate standing.  
Cross-listed with BIOL F602.  
Lecture + Lab + Other: 3 + 0 + 0  

WLF F604  Scientific Writing, Editing and Revising in the Biological Sciences  
3 Credits  
Offered Spring  
For students who are ready to produce a manuscript or thesis chapter. Topics include the publishing process (e.g., the role of editors and reviewers), preparing to write (selecting a journal, authorship), the components of the scientific paper, revising and editing manuscripts, and responding to reviews. Students will produce a complete manuscript.  
Prerequisites: Graduate standing in Biology, Wildlife, or related discipline.  
Cross-listed with BIOL F604.  
Lecture + Lab + Other: 3 + 0 + 0  

WLF F625  Population Dynamics of Vertebrates  
3 Credits  
Offered Spring Odd-numbered Years  
Sampling vertebrate populations, modeling their population dynamics and the implications for management. Focus will be on study design, model assumptions, estimation of population parameters and inference. State-of-the-art computer applications will be employed in laboratory exercises of actual and simulated data.  
Prerequisites: BIOL F371; STAT F401.  
Cross-listed with FISH F625.  
Lecture + Lab + Other: 2 + 3 + 0  

WLF F633  Conservation Genetics  
4 Credits  
Offered Spring  
Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.  
Prerequisites: BIOL F260; BIOL F371.  
Recommended: NRM F277.  
Cross-listed with BIOL F633.  
Stacked with BIOL F433; WLF F433.  
Lecture + Lab + Other: 3 + 3 + 0  

WLF F669  Landscape Ecology and Wildlife Habitat  
3 Credits  
Offered As Demand Warrants  
A problem-based learning and critical thinking approach to modern methods in landscape ecology, including geographic information systems, remote sensing, modeling, software and the Internet. Graduate students are expected to help undergraduates with problems and questions.  
Prerequisites: Graduate standing.  
Cross-listed with BIOL F669.  
Stacked with BIOL F469; WLF F469.  
Lecture + Lab + Other: 2 + 3 + 0  

WLF F680  Data Analysis in Biology  
3 Credits  
Offered Fall  
Biological applications of nonparametric statistics, including tests based on binomial and Poisson distributions, analysis of two-way and multiway contingency tables, and tests based on ranks; multivariate statistics, including principal component analysis, ordination techniques, cluster and discriminate analysis; and time-series analysis. Introduction to the use of the computer and use of statistical packages. Each student will analyze a data set appropriate to the student's research interests.  
Prerequisites: STAT F200X, STAT F401; graduate standing in a biologically oriented field.  
Cross-listed with BIOL F680.  
Lecture + Lab + Other: 2 + 3 + 0  

WLF F692  Graduate Seminar  
1-6 Credits  
Topics in fish and wildlife management explored through readings, talks, group discussions and guest speakers with a high level of student participation.  
Prerequisites: Graduate standing.  
Lecture + Lab + Other: 0 + 0 + 1-6  

Women's and Gender Studies (WGS)  

WGS F201X  Introduction to Women's Gender and Sexuality Studies  
(s)  
3 Credits  
An interdisciplinary introduction to the field of women's gender and sexuality studies, that explores its development, subject matter and methodologies. Readings from studies that have become classic examples of the importance of gender in research in many disciplines are examined.  
Attributes: UAF GER Social Sciences Req  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F202  History of Women in America  
(s)  
3 Credits  
Offered Fall Odd-numbered Years  
A chronological approach to the history of women in America. Introduction to major issues of concern to historians of women, as well as different approaches used in analysis of women's past. Consideration of multiracial backgrounds of American women.  
Cross-listed with HIST F202.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F308  Language and Gender  
(O, W, s)  
3 Credits  
Offered As Demand Warrants  
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; LING F101X; LING F216X; ANTH F100X; ANTH F101X or WGS F201X.  
Cross-listed with ANTH F308; LING F308.  
Lecture + Lab + Other: 3 + 0 + 0
WGS F320 Sociology of Gender (s) 3 Credits
Comprehensive survey of sociological inquiry and feminist revisions for studying gender in U.S. society and culture. Interrogates the meanings of gender, and the interactional, cultural, organizational and institutional arrangements that underlie the social construction of gender and gender inequality. 
Recommended: One lower-division WGS or SOC course. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F325 The History of Sexuality (s) 3 Credits
Offered Summer 
The history of sexuality from a worldwide comparative perspective. Theories and debates about the history of sexuality in selected times and places, with an emphasis on the modern period. 
Prerequisites: HIST F100X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X. 
Cross-listed with HIST F325. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F331 Women's Voices in Japanese Literature (W, h) 3 Credits 
Selected novels, short stories, poems and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society, the role of women writers as social critics, and cross-cultural differences and similarities in women's issues. 
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; ENGL F200X or FL F200X. 
Recommended: HIST F121, HIST F122X, HIST F331. 
Cross-listed with JPN F331. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F332 Human Sexualities Across Cultures (s) 3 Credits
Offered Alternate Fall Odd-numbered Years Exploration of how people in a variety of cultures, both contemporary and historical, construct the meaning and experience of sexuality and express themselves as sexual beings. Interdisciplinary study includes psychology, sociology, anthropology, gender studies and related fields, with particular focus determined by which department is offering the course. 
Prerequisites: SOC F101X or SOC F201X or PSY F101X or WGS F201X. 
Recommended: PSY F275 or SOC F373. 
Cross-listed with PSY F333; SOC F333. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F333 Women's Literature (h) 3 Credits
Offered Fall Odd-numbered Years Reading, discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period or genre, but readings will include both primary and secondary texts. 
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; sophomore standing. 
Cross-listed with ENGL F333. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F335 Gender and Crime (W) 3 Credits
Offered Spring An exploration of gender and crime including the extent of female crime, victimization, masculinity and violence, and women professionals in the justice system. 
Prerequisites: JUST F110X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; junior standing. 
Cross-listed with JUST F335. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F340 Gender, Sex and Politics (s) 3 Credits
Offered Spring Odd-numbered Years In-depth examination of the relevance of gender in political thought and action. Topics vary and may include: an historical perspective of political ideas on the nature and status of women; women's involvement in national and/or international political movements and organizations; feminist approaches to the social sciences; feminism as a political ideology. 
Prerequisites: One political science course. 
Recommended: WGS F201X. 
Cross-listed with PS F340. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F348 Native North American Women (W, s) 3 Credits
Offered As Demand Warrants Interdisciplinary examination of the relationship between Native American women and their social settings and cross-cultural experiences. Includes issues of political, economic and social solutions as employed by women in a large multi-ethnic nation-state. 
Prerequisites: ANS F101; ANTH F100X; WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SOC F101X; or permission of instructor. 
Cross-listed with ANS F348. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F350 Women's Issues in Social Welfare and Social Work Practices (W, s) 3 Credits
Examining the theories and research concerning women's issues in the field of social work and in the social welfare system, with particular emphasis on women in poverty and women of color. Contemporary policy issues and strategies of empowerment will be covered. 
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; SWK F103X or SOC F101X. 
Cross-listed with SWK F350. 
Lecture + Lab + Other: 3 + 0 + 0

WGS F351 Gender and Communication (s) 3 Credits
Offered Fall Basic socialization differences exist in the communication practices of women and men in every culture, resulting in differing cultural constructions of male and female gender. Those differences are addressed in interpersonal, organizational and cultural contexts. Explores cultural female/male dichotomy as well as individual similarities. 
Lecture + Lab + Other: 3 + 0 + 0
WGS F360  Psychology of Women Across Cultures  (O, s)  
3 Credits  
Offered As Demand Warrants  
Major theories, research and empirical data which describes the 
psychology of women as a discrete field, philosophical values of 
feminism and history of women's roles in society. The impact of culture 
on women interpersonally and intrapsychically examined across cultures.  
Prerequisites: COJO F131X or COJO F141X; PSY F101X or WGS F201X.  
Cross-listed with PSY F360.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F362  Feminist Philosophy  (h)  
3 Credits  
Offered As Demand Warrants  
Examination of contemporary feminist philosophical positions. Emphasis 
on feminist ethics, social and political philosophy, and epistemology.  
Cross-listed with PHIL F362.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F380  Women, Minorities and the Media  (O, h)  
3 Credits  
Offered Fall  
Basic socialization differences that exist in the communication practices 
of women and men in every culture are addressed in the interpersonal 
organizational and cultural contexts. Examination of how women and 
minorities are portrayed in the mass media, the employment of women 
and minorities in the media, and how accurately the media reflects our 
society demographically. Presented from a feminist, multiculturalist 
perspective using a broad feminist analysis encompassing issues of 
gender as well as class, race, age and sexual orientation.  
Prerequisites: COJO F131X or COJO F141X; junior standing.  
Cross-listed with COJO F380.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F403  Theories in Women's and Gender Studies  (h, s)  
3 Credits  
Offered Fall Odd-numbered Years  
This class will explore the intellectual history of women's and gender 
Studies. We will start our exploration in the late 18th century, and follow 
feminist theoretical ideas about women and gender through to the 
present. Although we will mostly focus on western theoretical work, 
we will also delve into non-western ideas, especially as these critique 
western ideas about women and gender.  
Prerequisites: WGS F201X.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F410  Women in Music History  (W, h)  
3 Credits  
Lives and works of female musicians, composers and performers will 
be traced from the earliest days of the ancient and mythological periods 
through the medieval, Baroque, Classical and Romantic periods with 
special emphasis on composers of the 20th-century.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or 
WRTG F214X; junior standing.  
Cross-listed with MUS F410.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F414  Women and Gender in East Asian History  (s)  
3 Credits  
Offered As Demand Warrants  
An in-depth seminar on the history of East Asia, with a special emphasis 
on the experiences of women and on the issue of gender. This seminar 
will focus on the modern period, and on China and Japan especially, 
though other regions of East Asia may also be considered.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; 
HIST F100X.  
Recommended: HIST F122X, HIST F275.  
Cross-listed with HIST F414.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F424  Topics in Women's History  (s)  
3 Credits  
Offered As Demand Warrants  
An in-depth seminar on a specific topic of current interest. Topics may 
change and may cover the history of European or American women from 
the 18th century to the present.  
Prerequisites: Junior standing.  
Cross-listed with HIST F424.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F433  Women, Gender and Sexuality in Language, Literature and 
Culture  
3 Credits  
Offered Fall Even-numbered Years  
Intensive study of variable topics in women, gender and/or sexuality 
Studies. Specific content to be announced at the time of registration.  
Course may be repeated for credit when content varies.  
Prerequisites: WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; 
sophomore standing; or permission of instructor.  
Cross-listed with ENGL F433.  
Lecture + Lab + Other: 3 + 0 + 0  

WGS F440  Gender and Education  (s)  
3 Credits  
Offered Alternate Spring Even-numbered Years  
Educational practices and processes and their relation to the changing 
situation of women in society. Examination of schools as sites of 
pervasive gender socialization and discrimination as well as offering new 
opportunities for liberation. Topics include social construction of gender, 
patterns of access and achievements, gender as an organizing principle 
in schools and classrooms, and feminist agendas and strategies for 
change.  
Prerequisites: Junior standing.  
Cross-listed with ED F440.  
Stacked with ED F640.  
Lecture + Lab + Other: 3 + 0 + 0
WGS F445  Gender in Cross-Cultural Perspective  (s)  
3 Credits  
Offered Spring Even-numbered Years  
Gender as both cultural construction and social relationship is examined through readings in comparative ethnographies portraying gender roles in a broad variety of societies, from hunter-gatherer to industrial. New theoretical and methodological approaches in anthropology for exploring and understanding the experiences of women and men in their cultural variety are presented.  
Prerequisites: ANTH F215 or WGS F201X.  
Cross-listed with ANTH F445.  
Stacked with ANTH F645.  
Lecture + Lab + Other: 3 + 0 + 0

WGS F460  Women and Development  (s)  
3 Credits  
Explores interrelationships over time of women, gender roles and development in the dynamic global economy, including issues in Alaska and the circumpolar north. Examines the historical marginalization of women in developmental processes, special issues affecting women in indigenous communities, and changing socio-economic and cultural gender roles of women and men in community development. Examines life histories of women that illustrate emerging principles and strategies for individual and community empowerment.  
Cross-listed with RD F460.  
Lecture + Lab + Other: 3 + 0 + 0

Writing (WRTG)  

WRTG F068  College Literacy Skills  
1-3 Credits  
Individualized instruction in writing and/or reading. Coursework can be designed to support specific courses or specific individuals as needed. This course does not fulfill the prerequisites for any other course. May be repeated for credit.  
Lecture + Lab + Other: 1-3 + 0 + 0

WRTG F080  Basic Writing and Reading  
4 Credits  
Offered As Demand Warrants  
Introduces college writing and reading skills. Develops sentences, paragraphs and short essays. Introduces strategies for effective revision. Enhances reading comprehension and vocabulary for academic reading. On completing this course students may retake Accuplacer for a higher placement. A grade of C or higher in this course qualifies students for WRTG F090.  
Prerequisites: Placement into WRTG F080.  
Lecture + Lab + Other: 4 + 0 + 0

WRTG F090  Writing and Reading Strategies  
4 Credits  
Offered As Demand Warrants  
Develops college writing and reading strategies. Reviews sentence and paragraph structure as part of the development of essays. Emphasizes revision techniques for essays and critical reading in academic contexts. A grade of C or higher in this course qualifies students for WRTG F110.  
On completing this course students may retake Accuplacer for placement into WRTG F111X.  
Prerequisites: Placement into WRTG F090, or a grade of C or higher in WRTG F080, or DEVE F060 and DEV S F052.  
Lecture + Lab + Other: 4 + 0 + 0

WRTG F110  Introduction to College Writing  
3 Credits  
Offered As Demand Warrants  
Intensive preparatory work in the college writing skills needed for WRTG F111X, including research, writing, revising and critical reading skills. Special fees apply.  
Prerequisites: C or better in WRTG F090, or placement.  
Lecture + Lab + Other: 3 + 0 + 0

WRTG F111X  Writing Across Contexts  
3 Credits  
An introduction to writing strategies and processes for reading and responding to rhetorical situations across a variety of public and academic contexts.  
Prerequisites: Placement into WRTG F111X.  
Lecture + Lab + Other: 3 + 0 + 0

WRTG F211X  Writing and the Humanities  
3 Credits  
An introduction to what writing is and does and how people learn to do it in the humanities, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.  
Prerequisites: WRTG F111X.  
Recommended: Sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0

WRTG F212X  Writing and the Professions  
3 Credits  
An introduction to what writing is and does and how people learn to do it in the professions, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.  
Prerequisites: WRTG F111X.  
Recommended: Sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0

WRTG F213X  Writing and the Sciences  
3 Credits  
An introduction to what writing is and does and how people learn to do it in the social and natural sciences, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.  
Prerequisites: WRTG F111X.  
Recommended: Sophomore standing.  
Lecture + Lab + Other: 3 + 0 + 0
WRTG F214X  Arguing Across Contexts
3 Credits
Offered As Demand Warrants
Instruction and practice in written research-supported arguments for a variety of audiences, with an emphasis on rhetorical strategies across a variety of public and academic contexts.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

Yup'ik (YUP)

YUP F101X  Elementary Central Yup'ik  (h, a)
5 Credits
Offered Fall
Introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read and write the language. Consideration given to dialect differences.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

YUP F102X  Elementary Central Yup'ik  (h, a)
5 Credits
Offered Spring
Introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read and write the language. Consideration given to dialect differences.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

YUP F103  Conversational Central Yup'ik  (a)
1-3 Credits
Offered As Demand Warrants
Entry-level course to learn to speak and understand Yup'ik Eskimo. Focus on communication in everyday situations. Kuskokwim and Northwest campuses only.
Lecture + Lab + Other: 1-3 + 0 + 0

YUP F104  Conversational Central Yup'ik  (a)
3 Credits
Offered As Demand Warrants
Entry-level course to learn to speak and understand Yup'ik Eskimo. Focus on communication in everyday situations. Kuskokwim and Northwest campuses only.
Prerequisites: YUP F103.
Lecture + Lab + Other: 1-3 + 0 + 0

YUP F109  Central Yup'ik Orthography  (a)
3 Credits
Offered Fall
An entry-level class for persons fluent in Central Yup'ik. Covers reading - silent and oral - and writing, emphasizing specific skills and practical application of those skills through writing assignments. Dialect differences in the Central Yup'ik region are used to demonstrate standardization of the writing systems.
Prerequisites: Demonstrated conversational Yup'ik skills.
Lecture + Lab + Other: 3 + 0 + 0

YUP F111X  Arguing Across Contexts
3 Credits
Offered As Demand Warrants
Instruction and practice in written research-supported arguments for a variety of audiences, with an emphasis on rhetorical strategies across a variety of public and academic contexts.
Prerequisites: WRTG F111X.
Lecture + Lab + Other: 3 + 0 + 0

YUP F121  Elementary Central Yup’ik Apprenticeship I  (a)
4 Credits
Offered As Demand Warrants
Entry-level course to learn to speak/understand Yup’ik Eskimo. Local speaker acts as language mentor/primary resource. Focus on everyday situations. Yup’ik faculty member serves as instructor of record. Student and mentor required to participate in 10-hour orientation, maintain weekly contact with instructor of record, and participate in monthly assessment. Kuskokwim Campus only. Special Conditions: Dependent on ability to identify willing mentor who meets Yup’ik faculty approval.
Lecture + Lab + Other: 1 + 10 + 0

YUP F122  Elementary Central Yup’ik Apprenticeship II  (a)
4 Credits
Offered As Demand Warrants
Continuation of YUP F121. Increasing emphasis on listening and speaking skills. Kuskokwim Campus only. Special Conditions: Dependent on ability to identify willing mentor who meets Yup’ik faculty approval.
Prerequisites: YUP F121 or formal assessment indicating equivalent speaking and listening skills.
Lecture + Lab + Other: 1 + 10 + 0

YUP F123  Elementary Central Yup’ik Apprenticeship III  (a)
4 Credits
Offered As Demand Warrants
Continuation of YUP F122. Increasing emphasis on listening and speaking skills. Kuskokwim Campus only. Special Conditions: Dependent on ability to identify willing mentor who meets Yup’ik faculty approval.
Prerequisites: YUP F122 or formal assessment indicating equivalent speaking and listening skills.
Lecture + Lab + Other: 1 + 10 + 0

YUP F130  Beginning Yup’ik Grammar  (h, a)
3 Credits
Offered Spring
Literacy and grammatical analysis of Central Yup’ik language for language learners. Students will learn basic grammatical concepts and literacy skills, with consideration given to dialect differences.
Prerequisites: YUP F103 or YUP F122 or basic conversational Yup’ik skills.
Lecture + Lab + Other: 3 + 0 + 0

YUP F131  Beginning Yup’ik Grammar II  (h)
3 Credits
Offered Fall
Continuation of literacy and grammatical analysis of Central Yup’ik. Students will learn intermediate grammatical concepts and literacy skills, with consideration given to dialect differences.
Prerequisites: YUP F130.
Lecture + Lab + Other: 3 + 0 + 0

YUP F155  Conversational Siberian Yupik  (a)
1-3 Credits
Offered As Demand Warrants
Introductory courses for students who wish to acquire the ability to speak in Siberian Yupik, the language of St. Lawrence Island and parts of the Chukchi Peninsula in Siberia. Students first learn to understand simple spoken language, then to speak simple Siberian Yupik, developing a beginning level of communicative competence in the language. Northwest Campus only.
Lecture + Lab + Other: 1-3 + 0 + 0
YUP F156  Conversational Siberian Yup'ik (a)  
1-3 Credits  
Offered As Demand Warrants  
Introductory courses for students who wish to acquire the ability to speak in Siberian Yup'ik, the language of St. Lawrence Island and parts of the Chukchi Peninsula in Siberia. Students first learn to understand simple spoken language, then to speak simple Siberian Yup'ik, developing a beginning level of communicative competence in the language.  
Northwest Campus only.  
Lecture + Lab + Other: 1-3 + 0 + 0  
YUP F158  Siberian Yup'ik Orthography (a)  
1-3 Credits  
Offered As Demand Warrants  
Introduction to the standard writing system (orthography) of Siberian Yup'ik. Students learn the skills of spelling, reading and writing words in Siberian Yup'ik, which are the fundamentals of basic literacy. Note:  
Northeast Campus only.  
Prerequisites: Ability to speak Siberian Yup'ik.  
Lecture + Lab + Other: 1-3 + 0 + 0  
YUP F201  Intermediate Central Yup'ik (h, a)  
3 Credits  
Offered Fall  
Continuation of YUP F101X and YUP F102X. Increasing emphasis on speaking, reading and writing.  
Prerequisites: YUP F102X.  
Lecture + Lab + Other: 3 + 0 + 0  
YUP F202  Intermediate Central Yup'ik (h, a)  
3 Credits  
Offered Spring  
Continuation of YUP F101X and YUP F102X. Increasing emphasis on speaking, reading and writing.  
Prerequisites: YUP F102X.  
Lecture + Lab + Other: 3 + 0 + 0  
YUP F203  Conversational Central Yup'ik (h, a)  
3 Credits  
Offered Fall  
A continuation of YUP F103 and YUP F104. Kuskokwim Campus only.  
Prerequisites: YUP F104.  
Lecture + Lab + Other: 3 + 0 + 0  
YUP F204  Conversational Central Yup'ik (h, a)  
3 Credits  
Offered Spring  
Continuation of YUP F203. Development of proficiency in the Central Yup'ik language, vocabulary for everyday situations, reading and writing.  
Prerequisites: YUP F203.  
Lecture + Lab + Other: 3 + 0 + 0  
YUP F205  Regaining Fluency in Yup'ik (h, a)  
3 Credits  
Offered Fall  
Yup'ik speaking skills and fluency for those with some background in the language.  
Prerequisites: Each potential student must be evaluated for language capabilities.  
Lecture + Lab + Other: 3 + 0 + 0  
YUP F206  Regaining Fluency in Yup'ik II (h, a)  
3 Credits  
Offered Spring  
Continuation of YUP F205. Speaking skills and fluency for those with some background in the language. Each potential student must be evaluated for language capabilities.  
Prerequisites: YUP F205.  
Lecture + Lab + Other: 3 + 0 + 0  
YUP F208  Yup'ik Composition (h, a)  
3 Credits  
Offered Spring  
An examination of the development of written Yup'ik and exploration of writing for entertainment, information, transcription of oral narratives and note taking in meetings where Yup'ik is the dominant language. New writing styles are examined, rather than simply translating the standard categories of English composition. Students receive extensive practice in Yup'ik orthography and participate in the evaluation of each other's writings.  
Prerequisites: YUP F109.  
Lecture + Lab + Other: 3 + 0 + 0  
YUP F221  Intermediate Central Yup'ik Apprenticeship I (a)  
3 Credits  
Offered As Demand Warrants  
Intermediate-level learning to speak and understand Yup'ik. Local speaker acts as mentor/primary resource. Focus on everyday situations. Yup'ik faculty member serves as instructor of record. Student and mentor required to participate in ten hour orientation, maintain weekly contact with instructor of record, and participate in monthly assessment.  
Kuskokwim Campus only. Special Conditions: Dependent on ability to identify willing mentor who meets Yup'ik faculty approval.  
Prerequisites: YUP F123 or formal assessment indicating equivalent speaking and listening skills.  
Lecture + Lab + Other: 1 + 10 + 0  
YUP F222  Intermediate Central Yup'ik Apprenticeship II (a)  
3 Credits  
Offered As Demand Warrants  
Continuation of YUP F221. Increasing emphasis on listening and speaking skills. Dependent on ability to identify willing mentor who meets Yup'ik faculty approval. Kuskokwim Campus only.  
Prerequisites: YUP F221 or formal assessment indicating equivalent speaking and listening skills.  
Lecture + Lab + Other: 1 + 10 + 0  
YUP F223  Intermediate Central Yup'ik Apprenticeship III (a)  
3 Credits  
Offered As Demand Warrants  
Continuation of YUP F222. Increasing emphasis on listening and speaking skills. Dependent on ability to identify willing mentor who meets Yup'ik faculty approval. Kuskokwim Campus only.  
Prerequisites: YUP F222 or formal assessment indicating equivalent speaking and listening skills.  
Lecture + Lab + Other: 1 + 10 + 0  
YUP F230  Introduction to Interpreting and Translating I (h, a)  
3 Credits  
Offered As Demand Warrants  
Introduction to interpreting and translating, designed for both those wishing to enter the field and those who wish to upgrade their skills. Discussion of problems which arise during interpreting and translating along with suggestions on how to handle them.  
Prerequisites: Must be fluent in English and Yup'ik.  
Lecture + Lab + Other: 3 + 0 + 0
YUP F231  Introduction to Interpreting and Translating II  (h, a)  3 Credits  Offered As Demand Warrants  Continuation of YUP F230.  
Prerequisites: YUP F230.
Lecture + Lab + Other: 3 + 0 + 0

YUP F240  Introduction to Reading and Writing Yup'ik  (a)  3 Credits  Offered Fall Odd-numbered Years  Emphasis on reading and writing Yup'ik for practical purposes (posters, brochures, pamphlets, newsletters, signs) and continued language learning (short stories, descriptions and narratives).  
Prerequisites: YUP F130; YUP F204 or YUP F222.
Lecture + Lab + Other: 3 + 0 + 0

YUP F250  Yup'ik Literature for Children  (a)  3 Credits  Offered As Demand Warrants  Students explore and practice reading children's literature in Yup'ik. Students are exposed to a variety of genres (fiction, nonfiction, traditional stories, poetry, songs, etc.). Reader leveling will be discussed. Students are required to write targeted readers for specific reading levels in Yup'ik. Kuskokwim campus only.  
Prerequisites: YUP F208 or equivalent reading and writing skills.
Lecture + Lab + Other: 3 + 0 + 0

YUP F251  Teaching Beginning Yup'ik Reading and Writing  (a)  3 Credits  Offered As Demand Warrants  Teaching strategies in Yup'ik literacy. Focus on reading and writing at the primary/early entry through intermediate levels. Students develop lessons for reading, writing and word study; manage instructional time; and use assessment for placement and instructional purposes. Materials, reading resources, and instructional guides will be reviewed and used for the development of lessons. Kuskokwim Campus only.  
Prerequisites: YUP F208 or equivalent reading and writing skills.
Lecture + Lab + Other: 3 + 0 + 0

YUP F260  Siberian Yupik  (h, a)  3 Credits  Offered As Demand Warrants  A course in Eskimo language of St. Lawrence Island and the opposing area of Chukotka in Russia. Concentration on literacy and grammar with background given for conversation. Open to speakers of the language and to others if they have taken one or more years of Central Yup'ik or Inupiaq courses.  
Prerequisites: Ability to speak Siberian Yupik or one year study of other Eskimo language.
Lecture + Lab + Other: 3 + 0 + 0

YUP F261  Siberian Yupik  (h, a)  3 Credits  Offered As Demand Warrants  A course in Eskimo language of St. Lawrence Island and the opposing area of Chukotka in Russia. Concentration on literacy and grammar (with background given for conversation.) Open to speakers of the language and to others if they have taken one or more years of Central Yup'ik or Inupiaq courses.  
Prerequisites: Ability to speak Siberian Yupik or one year study of other Eskimo language.
Lecture + Lab + Other: 3 + 0 + 0

YUP F301  Advanced Central Yup'ik  (h, a)  3 Credits  Offered Fall  Continuation of YUP F201 and YUP F202. Completes the basic study of the Central Yup'ik grammar.  
Prerequisites: YUP F101X; YUP F102X; YUP F201; YUP F202.
Lecture + Lab + Other: 3 + 0 + 0

YUP F330  Yup'ik Literature/Yupiit Quliraitnek Igaryaq  (W, h, a)  3 Credits  Offered Fall Even-numbered Years  Central Yup'ik literature with exposure to a variety of literary styles, including qulirat, qaneryaraqtaaraat, ak'allaat qulirat, qanruyutet/alerquutet. Broad range of regional, stylistic and orthographic traditions through a variety of short papers and a final paper/project. Specific content to be announced at time of registration. Taught entirely in Yup'ik. Kuskokwim Campus only.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; YUP F208; YUP F240.
Lecture + Lab + Other: 3 + 0 + 0

YUP F375  Yup'ik Philosophy/Umyuarteqsaraq  (O, h, a)  3 Credits  Offered Fall Even-numbered Years  Exploration of Yup'ik philosophy and spirituality, including exploration of the relationship between modern and traditional belief systems and the influence of western religion and philosophy. Taught entirely in Yup'ik. Kuskokwim Campus only.  
Prerequisites: COJO F131X or COJO F141X; YUP F240.
Lecture + Lab + Other: 3 + 0 + 0

YUP F415  Additional Topics in Advanced Yup'ik  (h, a)  3 Credits  Offered Spring  Further study of Yup'ik linguistics. Includes text transcription, editing, analysis and discussion. Yup'ik dialectology. Study of related Eskimo languages from the standpoint of Central Yup'ik. Additional topics to be studied depending upon the interests of the students and the instructor.  
Prerequisites: YUP F101X; YUP F102X; YUP F201; YUP F202.
Lecture + Lab + Other: 3 + 0 + 0

YUP F488  Documenting Yup'ik Traditions/Caliarkaq  (W, h, a)  3 Credits  Offered Fall Even-numbered Years  Major research project relating to Yup'ik language and culture (e.g., traditional narratives, personal/local histories, local customs/beliefs). Project formats include (but are not limited to) research papers, video/audiotapes, curricula and public presentations. Note: As a writing-intensive course, all formats will include a significant written component. Taught entirely in Yu'pik. Kuskokwim Campus only.  
Prerequisites: WRTG F111X; WRTG F211X, WRTG F212X, WRTG F213X or WRTG F214X; YUP F330; senior standing.
Lecture + Lab + Other: 3 + 0 + 0
UAF ADMINISTRATION, FACULTY AND EMERITI

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UAF Administration

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<td>Chancellor</td>
<td>Daniel M. White</td>
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<tr>
<td>Provost</td>
<td>Anupma Prakash, Executive Vice Chancellor, Academic Affairs</td>
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<tr>
<td>Administrative Services</td>
<td>Kari Burrell, Vice Chancellor</td>
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<tr>
<td>Arctic Biology, Institute of</td>
<td>Brian Barnes, Director</td>
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<tr>
<td>Community and Technical College</td>
<td>Michele Stalder, Dean</td>
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<tr>
<td>Cooperative Extension Service</td>
<td>Fred Schlutt, Vice Provost for Extension and Outreach, Director</td>
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<td>Education, School of</td>
<td>Amy Vinlove, Director</td>
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<tr>
<td>eLearning &amp; Distance Education</td>
<td>Carol Gering, Executive Director</td>
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<td>Engineering and Mines, College of</td>
<td>Doug Goering, Dean</td>
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<tr>
<td>Equity and Compliance</td>
<td>Margo Griffith, Director</td>
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<td>Facilities Services</td>
<td>Scott Bell, Associate Vice Chancellor</td>
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<tr>
<td>Fisheries and Ocean Sciences, School of</td>
<td>S. Bradley Moran, Dean</td>
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<tr>
<td>Geophysical Institute</td>
<td>Robert McCoy, Director</td>
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<td>Graduate School</td>
<td>Michael Castellini, Interim Dean</td>
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<tr>
<td>Information Technology</td>
<td>Martha Mason, Chief Information Technology Officer</td>
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<td>International Arctic Research Center</td>
<td>Hajo Eicken, Director</td>
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<td>Liberal Arts, College of</td>
<td>Todd Sherman, Dean</td>
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<td>Management, School of</td>
<td>Mark Herrmann, Dean</td>
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<tr>
<td>Marine Science, Institute of</td>
<td>Jennifer Reynolds, Director</td>
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<td>Museum of the North, University of Alaska</td>
<td>Patrick Druckemiller, Director</td>
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<tr>
<td>Natural Resources and Extension, School of</td>
<td>David Valentine, Director of Academic Programs</td>
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<tr>
<td>Natural Science and Mathematics, College of</td>
<td>Leah Berman, Interim Dean</td>
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<tr>
<td>Northern Engineering, Institute of</td>
<td>William Schnabel, Director</td>
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<tr>
<td>Research</td>
<td>Larry Hinzman, Vice Chancellor</td>
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<tr>
<td>Rural and Community Development, College of</td>
<td>Evon Peter, Vice Chancellor for Rural, Community and Native Education</td>
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<tr>
<td>--Bristol Bay Campus</td>
<td>Sarah Andrew, Director</td>
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<tr>
<td>--Chukchi Campus</td>
<td>Peter Pinney, Acting Director</td>
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<td>--Interior Alaska Campus</td>
<td>Bryan Uher, Director</td>
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<td>--Kuskokwim Campus</td>
<td>Mary Ciuniq Pete, Director</td>
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<td>--Northwest Campus</td>
<td>Bob Metcalf, Director</td>
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<td>Student Affairs</td>
<td>Keith Champagne, Vice Chancellor</td>
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Governance

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<td>ASUAF</td>
<td>Dawson Mann, President (2018-2019)</td>
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<td>Faculty Senate</td>
<td>Donie Bret-Harte, President (2018-2019)</td>
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<td>Staff Council</td>
<td>Kara Axx, President (2018-2019)</td>
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Faculty

The abbreviation that follows the person's title indicates the University of Alaska Fairbanks unit in which the employee works.

The abbreviations are:

- AFES Agricultural and Forestry Experiment Station
- AKCFWRU Alaska Cooperative Fish and Wildlife Research Unit
- ANLC Alaska Native Language Center
- BBC Bristol Bay Campus
- CANHR Center for Alaska Native Health Research
- CC Chukchi Campus
- CEM College of Engineering and Mines
- CES Cooperative Extension Service
- CFOS College of Fisheries and Ocean Sciences
- CHANC Chancellor's Office
- CLA College of Liberal Arts
- CNSM College of Natural Science and Mathematics
- CTC Community and Technical College
- CRCD College of Rural and Community Development
- CRS Center for Research Services
- DANSRD Department of Alaska Native Studies and Rural Development
- EDE eLearning and Distance Education
- GI Geophysical Institute
- GRAD Graduate School
- IAB Institute of Arctic Biology
- IAC Interior Alaska Campus
- IARC International Arctic Research Center
- INE Institute of Northern Engineering
- KUC Kuskokwim Campus
- LIB Elmer E. Rasmuson Library
- MUSEUM University of Alaska Museum of the North
- NWC Northwest Campus
- PROV Provost's Office
- SA Student Affairs
- SNRE School of Natural Resources and Extension
- SOE School of Education
- SOM School of Management
- VCAS Vice Chancellor for Administrative Services
- WERC Water and Environmental Research Center

A

**Abramowicz, Kenneth F.** Associate Professor of Accounting, SOM. University of Tulsa ’82 BA; ’83 MS; University of Missouri–Columbia ’91 PhD.

**Adams, Barbara L.** Term Assistant Professor, SOE. Messiah College ’91 BA; Northern Arizona University ’93 MS; University of Alaska Fairbanks ’02 PhD.

**Adkison, Milo D.** Professor of Fisheries, CFOS. University of California, Davis ’84 BS; Montana State University, Bozeman ’89 MS; Montana State University ’90 MS; University of Washington ’94 PhD.

**Aggarwal, Srijan** Assistant Professor of Civil and Environmental Engineering, CEM. Indian Institute of Technology Delhi ’07 BS; University of Minnesota - Twin Cities ’09 MS; ’11 PhD.

**Aguilar–Islas, Ana Maria** Associate Professor of Oceanography, CFOS. University of California, Santa Cruz ’07 PhD.

**Ahmadi, Mohabbat** Associate Professor of Petroleum Engineering, CEM. Petroleum University of Technology, Ahwaz, Iran ’00 BS; ’03 MS; University of Texas at Austin ’10 PhD.

**Ahn, Il Sang** Assistant Professor of Civil and Environmental Engineering, CEM. Seoul National University ’91 BS; ’93 MS; State University of New York at Buffalo ’05 PhD.

**Akdogan, Guven** Associate Professor of Mineral Processing, CEM. Middle East Technical University (Turkey) ’85 BS; ’87 MS.

**Al-Badri, Maher** Assistant Professor of Electrical and Computer Engineering, CEM. University of Baghdad ’84 BS; University of Malaya ’09 MEng; Concordia University ’15 PhD.
Albertson, Leif E. Associate Professor of Extension, SNRE. Youth, Family and Community Development Agent, Yukon–Kuskokwim District, CES. University of California, Berkeley ‘01 BA; Harvard University ‘06 MS.

Alexander, Kevin Wayne Associate Professor of Airframe and Power Plant Maintenance, CTC. University of Alaska Fairbanks ’96 Certificate; ’05 AAS.

Alexander, Samuel Instructor of Homeland Security and Emergency Management, SOM. United States Military Academy ’02 BS; Dartmouth College ’14 MBA.

Alexeev, Vladimir Research Professor, IARC. Moscow Institute for Physics and Technology ’84 MS; ’88 PhD.

Alexie, Oscar F. Assistant Professor, KUC/CRCD. University of Alaska Fairbanks ’04 BA.

Alexie, Sophie Ann Instructor of Yup’ik Eskimo, KUC/CRCD. Kuskokwim Community College AA; University of Alaska Fairbanks ’78 BA; ’83 BEd.

Allman, Elizabeth S. Professor of Mathematics, CNSM. Yale University ’87 BS; University of California, Los Angeles ’92 MA; ’95 PhD.

Anahita, Jensine Martha Associate Professor of Sociology, CLA. Iowa State University ’97 BS; ’00 MS; ’03 PhD.

Andreachek, Cynthia R. Instructor, KUC/CRCD.

Anger, Andreas Paul Wilhelm Professor, CTC. University of Nebraska ’90 MBA; University of Bayreuth, Germany ’91 Diplom–Kaufmann.

Aoki, Miho Associate Professor of Art, CLA. Aichi University, Japan ’91 Bed; Ohio State University ’98 MFA.

Arkel, Jim Assistant Professor of Business Administration, SOM. Texas Tech University ’86 BA; ’89 JD.

Arndt, Katherine Louise Associate Professor of Library Science, LIB. University of Wisconsin–Madison ’74 BA; University of Alaska Fairbanks ’77 MA; ’96 PhD.

Arp, Christopher Douglas Research Associate Professor, WERC/INE. Utah State University ’06 PhD.

Arthur, Melanie Marie Associate Professor of Sociology, CLA. Rice University ’92 BA; Johns Hopkins University ’01 Ph.D.

Aschwanden, Andreas Research Associate Professor, Gl. ETH Zurich ’04 MSc; ’08 PhD.

Atashbari, Vahid Visiting Assistant Professor of Petroleum Engineering, CEM. Petroleum University of Technology, Iran ’04 BS; Azad University, Iran ’07 MS; University of Adelaide, Australia ’16 PhD.

Atkinson, Judith Ann Professor of Developmental Mathematics, CRCD. Eastern Kentucky University ’88 BS; University of Alaska Fairbanks ’93 MS; ’02 PhD.

Atkinson, Shannon Professor of Fisheries, CFOS. University of Hawaii ’78 BS; University of Hawaii at Manoa ’81 MS; Murdoch University ’85 PhD.

Avdonin, Sergei Anatolievich Professor of Mathematics, CNSM. St. Petersburg State University ’72 BS; ’77 PhD.

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B

Bacsujak, Mara C. Term Assistant Professor of Extension, SNRE. Youth, Family and Community Development Agent, CES. University of Pennsylvania ’86 BA.

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Baker, Victoria Nan Associate Professor, CFOS. University of Washington ’81 BA; University of Alaska Anchorage ’02 MEd.

Bargar, Harold Edward Assistant Professor of Mechanical Engineering, CEM. University of Nebraska ’77 BS; University of Alaska Fairbanks ’96 MS; ’03 PhD.

Barnes, Brian M. Director, IAB. Professor, CNSM. University of California, Riverside ’77 BS; University of Washington ’83 PhD.

Barnes, David L. Professor of Civil and Environmental Engineering, CEM. New Mexico State University ’85 BS; ’87 MS; Colorado State University ’97 PhD.

Barry, Ronald P. Professor of Statistics, CNSM. University of Alaska Anchorage ’84 AA; University of Alaska Fairbanks ’85 BS; ’87 MS; University of California, Irvine ’91 PhD.

Barry, Timothy Joseph Term Assistant Professor, CRCD. University of Alaska Fairbanks ’07 BS.

Beaudreau, Anne Associate Professor, CFOS. Harvard University ’01 AB; University of Washington ’09 Ph.D.

Bell, Scott Votaw Associate Vice Chancellor for Facilities Services, VCAS. University of Alaska Fairbanks ’82 BS.

Belz, Nathan P. Assistant Professor, CEM. University of Maine ’06 BS; ’08 MS; University of Vermont ’13 PhD.

Benowitz, Jeffrey Apple Research Associate Professor, Gl. University of Alaska Fairbanks ’92 BS; ’04 MFA; ’12 PhD.

Berge, Anna Mary Sophia Professor of Linguistics, CLA. University of Wisconsin–Madison ’88 BA; University of California, Berkeley ’91 MA; ’92 MLIS; ’97 PhD.

Berman Williams, Leah Wrenn Professor of Mathematics, CNSM. Lewis and Clark College ’97 BA; University of Washington ’01 MS; University of Washington ’02 PhD.

Berry, Kevin T. Professor of Accounting, SOM. Associate Dean, SOM. Bradley University ’89 BS; University of Missouri–Columbia ’90 MAcc; Oklahoma State University ’95 PhD.

Bersamin, Andrea Associate Professor of Nutrition, CNSM/IBAB. University of California, Berkeley ’99 BA; University of California, Davis ’06 PhD.

Bhatt, Uma S. Professor, CNSM/GL. University of Pittsburgh ’83 BA; ’83 BSE; University of Wisconsin ’89 MS; ’96 PhD.

Bicigo, James M. Associate Professor of Music, CLA. University of Michigan ’88 BM; Western Michigan University ’93 MA; Michigan State University ’98 DMA.
Billings, Frederick James Assistant Professor of Psychology, CLA. Lehigh University BS; Western Washington University MS; University of Texas PhD.

Blake, John E. Associate Vice Chancellor for Research, CRS. Director of Research Integrity, CRS. University of Saskatchewan '80 DVM; '87 MVetSc.

Blanchard, Amy L. Professor, CFOS. University of Alaska Fairbanks '89 BS; ’99 MS; '06 PhD.

Boldt, Frank Assistant Professor, CLA. University of Colorado '14 BA; University of Alaska Fairbanks '16 MA.

Bolton, William R. Research Assistant Professor, IARC. California Lutheran University '91 BA; University of Alaska Fairbanks '96 MS; '06 PhD.

Bossert, Katrina E. Assistant Professor of Electrical and Computer Engineering, CEM and GI. University of Colorado, Boulder '10 BS; '10 MS; '15 PhD.

Bouffard, Troy Instructor of Homeland Security and Emergency Management, SOM. University of Alaska Fairbanks '13 BA; '16 MA.

Bowman, Latrice Nichelle Instructor of Mathematics, CNSM. University of Alaska Fairbanks '99 AA; '99 BS; '02 MS.

Boyer, Bert B. Director, CANHR. Associate Director, IAB. Professor of Molecular Biology, IAB. Texas Tech University '82 BA; Louisiana State University Medical Center '88 PhD.

Boylan, Brandon M. Associate Professor, CLA. Mercyhurst College '03 BA; University of Limerick '04 MA; University of Pittsburgh '13 PhD.

Brashears, James J. Professor of Art, CLA. Indiana University of Pennsylvania '87 BFA; Louisiana State University '90 MFA.

Breed, Greg A. Assistant Professor of Quantitative Ecology, CNSM/IAB. University of Minnesota '98 BS; Texas AM University '02 MS; Dalhousie University '09 PhD.

Breen, Amy Lynn Assistant Research Professor, IARC. Adjunct Professor of Biology, SNRE. College of the Atlantic '94 BA; University of Missouri–Columbia '00 MS; University of Alaska Fairbanks '10 PhD.

Bret–Harte, Marion Syndonia Associate Professor of Plant Biology, CNSM/IAB. Reed College '83 BA; Stanford University '90 PhD.

Bridwell, Gara Deanne Assistant Professor, Early Childhood Programs, CRCD.

Brigham, Lawson W. Distinguished Professor of Geography and Arctic Policy, SNRE. U.S. Coast Guard Academy '70 BS; Rensselaer Polytechnic Institute '79 MS; United States Naval War College '82 Diploma; University of Cambridge '96 MPhil; '00 PhD.

Brightwell, Geraldine Anne Professor of Creative Writing, CLA. Bristol Polytechnic '87 BA; University of East Anglia '89 MA; University of Alaska Fairbanks '94 MFA; University of Minnesota '04 PhD.

Brinkman, Todd Jared Assistant Professor, CNSM/IAB. Minnesota State University '00 BS; South Dakota State University '03 MSc; University of Alaska Fairbanks '09 PhD.

Bristow, William A. Professor of Electrical and Computer Engineering, CEM and GI. University of Alaska Fairbanks '88 BS; '92 PhD.

Brocious, Heidi Lenore Clinical Professor, CLA. University of Alaska Southeast '95 BEd; Walla Walla College '99 MSW.

Brooks, Catherine Ann Assistant Professor, DANSRD/CRCD. Pennsylvania State University '90 BS; '92 MS.

Brower, Ronald Hopson Instructor of Inupiaq Eskimo, ANLC. Sorbonne University (France) '76 AA; University of Alaska Fairbanks '14 BA.

Brown, Stephen Castlebury Professor of Extension, SNRE. Agriculture and Horticulture Agent, Copper River/Matanuska–Susitna District, CES. Texas AM University '87 BS; University of Texas at San Antonio '92 MS; State University of New York at Syracuse '99 PhD.

Bueller, Ed Professor of Mathematics (Applied), CNSM/GI. California State University, Chico '91 BS; Cornell University '94 MS; '97 PhD.

Bult–Ito, Abel Professor of Biology, CNSM. University of Groningen '85 BS; '88 MS; Wesleyan University '94 PhD.

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