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</tr>
<tr>
<td>Physics (PHYS)</td>
<td>589</td>
</tr>
<tr>
<td>Political Science (PS)</td>
<td>595</td>
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<tr>
<td>Power Generation (PGEN)</td>
<td>601</td>
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<tr>
<td>Process Technology (PRT)</td>
<td>601</td>
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<tr>
<td>Psychology (PSY)</td>
<td>602</td>
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<tr>
<td>Recreation (RECR)</td>
<td>610</td>
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<tr>
<td>Religion (RELG)</td>
<td>616</td>
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<tr>
<td>Rural Development (RD)</td>
<td>616</td>
</tr>
<tr>
<td>Rural Human Services (RHS)</td>
<td>620</td>
</tr>
<tr>
<td>Rural Nutrition Services (RNS)</td>
<td>621</td>
</tr>
<tr>
<td>Russian (RUSS)</td>
<td>622</td>
</tr>
<tr>
<td>Science Applications (SCIA)</td>
<td>623</td>
</tr>
<tr>
<td>Science Teaching and Outreach (STO)</td>
<td>624</td>
</tr>
<tr>
<td>Social Work (SWK)</td>
<td>625</td>
</tr>
</tbody>
</table>
ACADEMIC CALENDAR

Fairbanks Campus Academic Calendar 2016-2017

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

View the 2015-2016 academic calendar (http://www.uaf.edu/catalog/catalog_15-16/acad_calendar.html).

**FALL SEMESTER 2016**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2016 course list available at UAOnline</td>
<td>Monday, March 21</td>
</tr>
<tr>
<td>Begin registration and fee payment for degree students for fall 2016 semester</td>
<td>Monday, April 4</td>
</tr>
<tr>
<td>Begin registration and fee payment for nondegree students for fall 2016 semester</td>
<td>Monday, April 11</td>
</tr>
<tr>
<td>Deadline to apply for admission for fall semester (UA Scholars)</td>
<td>Sunday, May 1</td>
</tr>
<tr>
<td>Deadline to apply for admission for fall semester (graduate students)</td>
<td>Wednesday, June 1</td>
</tr>
<tr>
<td>Deadline to apply for admission for fall semester (undergraduate students)</td>
<td>Wednesday, June 15</td>
</tr>
<tr>
<td>Residence halls open, 8 a.m.</td>
<td>Thursday, Aug. 25</td>
</tr>
<tr>
<td>Orientation for new students</td>
<td>Thursday-Sunday, Aug. 25-28</td>
</tr>
<tr>
<td>First day of instruction; late registration begins</td>
<td>Monday, Aug. 29</td>
</tr>
<tr>
<td>Labor Day (offices closed — no classes, registration or fee payment)</td>
<td>Monday, Sept. 5</td>
</tr>
<tr>
<td>Deadline for adding classes and late registration; 5 p.m. in person, midnight at UAOnline</td>
<td>Friday, Sept. 9</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated drops (course does not appear on academic record)</td>
<td>Friday, Sept. 9</td>
</tr>
<tr>
<td>Deadline for tuition and fee payment; 5 p.m. in person, midnight at UAOnline</td>
<td>Monday, Sept. 12</td>
</tr>
<tr>
<td>Early progress reports due</td>
<td>Sunday, Oct. 2</td>
</tr>
<tr>
<td>Deadline to apply for fall 2016 graduation</td>
<td>Monday, Oct. 17</td>
</tr>
<tr>
<td>Spring 2017 course list available at UAOnline</td>
<td>Monday, Oct. 31</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals (W grade appears on academic transcript)</td>
<td>Friday, Nov. 4</td>
</tr>
<tr>
<td>Begin registration and fee payment for spring 2017 semester</td>
<td>Monday, Nov. 14</td>
</tr>
<tr>
<td>Thanksgiving holiday (no classes, most offices closed)</td>
<td>Thursday-Sunday, Nov. 24-27</td>
</tr>
<tr>
<td>Last day of instruction</td>
<td>Saturday, Dec. 10</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Saturday-Monday, Dec. 12-17</td>
</tr>
<tr>
<td>Residence halls close, noon</td>
<td>Sunday, Dec. 18</td>
</tr>
<tr>
<td>Deadline for faculty to post grades, noon</td>
<td>Wednesday, Dec. 21</td>
</tr>
<tr>
<td>Winter holiday (no classes, most offices closed; reopen Wednesday, Jan. 4, at 8 a.m.)</td>
<td>Saturday, Dec. 24-Tuesday, Jan. 3</td>
</tr>
</tbody>
</table>

**WINTERMESTER AND SPRING SEMESTER 2017**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadline to apply for admission for spring semester (international students)</td>
<td>Thursday, Sept. 1</td>
</tr>
<tr>
<td>Deadline to apply for admission for spring semester (graduate students)</td>
<td>Saturday, Oct. 15</td>
</tr>
<tr>
<td>Spring 2017 course list available at UAOnline</td>
<td>Monday, Oct. 31</td>
</tr>
<tr>
<td>Deadline to apply for admission for spring semester (undergraduate students)</td>
<td>Tuesday, Nov. 1</td>
</tr>
<tr>
<td>Begin registration and fee payment for spring 2017 semester and WINTERMESTER 2017</td>
<td>Monday, Nov. 14</td>
</tr>
<tr>
<td>Begin registration and fee payment for nondegree students for spring 2017 semester and WINTERMESTER 2017</td>
<td>Monday, Nov. 21</td>
</tr>
<tr>
<td>WINTERMESTER courses begin</td>
<td>Wednesday, Jan. 4</td>
</tr>
<tr>
<td>Deadline for adding WINTERMESTER classes; 5 p.m. in person, midnight at UAOnline</td>
<td>Wednesday, Jan. 4</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. 4</td>
</tr>
<tr>
<td>Deadline for WINTERMESTER student- and faculty-initiated withdrawals (W grade appears on academic transcript)</td>
<td>Monday, Jan. 9</td>
</tr>
<tr>
<td>Last day of WINTERMESTER instruction and finals</td>
<td>Friday, Jan. 13</td>
</tr>
<tr>
<td>Residence halls open, 8 a.m.</td>
<td>Sunday, Jan. 15</td>
</tr>
<tr>
<td>Orientation for new students</td>
<td>Sunday, Jan. 15</td>
</tr>
<tr>
<td>Alaska Civil Rights Day (no classes, most offices closed)</td>
<td>Monday, Jan. 16</td>
</tr>
<tr>
<td>First day of instruction; late registration begins</td>
<td>Tuesday, Jan. 17</td>
</tr>
<tr>
<td>Deadline for faculty to post WINTERMESTER grades, noon</td>
<td>Thursday, Jan. 19</td>
</tr>
<tr>
<td>Event</td>
<td>Date Range</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Deadline for adding classes and late registration; 5 p.m. in person, midnight at UAOnline</td>
<td>Friday, Jan. 27</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated drops (course does not appear on academic record)</td>
<td>Friday, Jan. 27</td>
</tr>
<tr>
<td>Last day for tuition and fee payment; 5 p.m. in person, midnight at UAOnline</td>
<td>Monday, Jan. 30</td>
</tr>
<tr>
<td>Deadline for UA Foundation and privately funded scholarship applications</td>
<td>Wednesday, Feb. 15</td>
</tr>
<tr>
<td>Deadline to apply for spring 2017 graduation</td>
<td>Wednesday, Feb. 15</td>
</tr>
<tr>
<td>Early progress reports due</td>
<td>Sunday, Feb. 19</td>
</tr>
<tr>
<td>Spring break (no classes)</td>
<td>Monday-Friday, March 13-17</td>
</tr>
<tr>
<td>University holiday (most offices closed for spring break)</td>
<td>Friday, March 17</td>
</tr>
<tr>
<td>Fall 2017 course list available at UAOnline</td>
<td>Monday, March 20</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals (W grade appears on academic transcript)</td>
<td>Friday, March 31</td>
</tr>
<tr>
<td>Begin registration and fee payment for fall 2017 semester (degree students)</td>
<td>Monday, April 3</td>
</tr>
<tr>
<td>Begin registration and fee payment for fall 2017 semester (nondegree students)</td>
<td>Monday, April 10</td>
</tr>
<tr>
<td>SpringFest (no classes)</td>
<td>Friday, April 21</td>
</tr>
<tr>
<td>Last day of instruction</td>
<td>Monday, May 1</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Tuesday-Friday, May 2-5</td>
</tr>
<tr>
<td>Commencement</td>
<td>Saturday, May 6</td>
</tr>
<tr>
<td>Residence halls close, noon</td>
<td>Monday, May 8</td>
</tr>
<tr>
<td>Deadline for faculty to post grades, noon</td>
<td>Wednesday, May 10</td>
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</tbody>
</table>

**SUMMER SEMESTER 2017**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date Range</th>
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<tbody>
<tr>
<td>Summer 2017 course list available at UAOnline</td>
<td>Wednesday, Feb. 1</td>
</tr>
<tr>
<td>Registration and fee payment for summer courses begin</td>
<td>Monday, Feb. 27</td>
</tr>
<tr>
<td>Deadline to apply for admission for summer semester</td>
<td>Monday, May 1</td>
</tr>
<tr>
<td>MAYmester courses begin; attendance required. Deadline to register for MAYmester, or for refund of tuition and fees for MAYmester</td>
<td>Monday, May 8</td>
</tr>
<tr>
<td>Late payment fees begin for MAYmester</td>
<td>Tuesday, May 9</td>
</tr>
<tr>
<td>Deadline for student- and faculty-initiated withdrawals for MAYmester (W appears on academic transcript)</td>
<td>Monday, May 15</td>
</tr>
<tr>
<td>Last day of MAYmester instruction</td>
<td>Friday, May 19</td>
</tr>
<tr>
<td>First day of instruction for six-week session I and full session</td>
<td>Monday, May 22</td>
</tr>
<tr>
<td>Deadline to register for six-week session I; attendance required on this day</td>
<td>Wednesday, May 24</td>
</tr>
<tr>
<td>Deadline for refund of tuition and fees for six-week session I</td>
<td>Wednesday, May 24</td>
</tr>
<tr>
<td>Late payment fees begin for six-week session I</td>
<td>Thursday, May 25</td>
</tr>
<tr>
<td>Memorial Day (no classes, most offices closed)</td>
<td>Monday, May 29</td>
</tr>
<tr>
<td>Deadline to register for full session; attendance required</td>
<td>Tuesday, May 30</td>
</tr>
<tr>
<td>Deadline for refund of tuition and fees for full session</td>
<td>Tuesday, May 30</td>
</tr>
<tr>
<td>Late payment fees begin for full session</td>
<td>Wednesday, May 31</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals (W appears on academic transcript) for six-week session I</td>
<td>Wednesday, June 14</td>
</tr>
<tr>
<td>Deadline to apply for summer 2017 graduation</td>
<td>Thursday, June 15</td>
</tr>
<tr>
<td>Last day of instruction for six-week session I</td>
<td>Friday, June 30</td>
</tr>
<tr>
<td>Independence Day holiday (no classes, most offices closed)</td>
<td>Monday-Tuesday, July 3-4</td>
</tr>
<tr>
<td>First day of instruction for six-week session II</td>
<td>Wednesday, July 5</td>
</tr>
<tr>
<td>Deadline to register for six-week session II; attendance required on this day</td>
<td>Monday, July 10</td>
</tr>
<tr>
<td>Last day for refund of tuition and fees for six-week session II</td>
<td>Monday, July 10</td>
</tr>
<tr>
<td>Last day for registration. Deadline for thesis and research credit payment (graduate students).</td>
<td>Monday, July 10</td>
</tr>
<tr>
<td>Late payment fees begin for six-week session II</td>
<td>Tuesday, July 11</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals for full session (W appears on academic transcript)</td>
<td>Tuesday, July 11</td>
</tr>
<tr>
<td>Last day for student- and faculty-initiated withdrawals for six-week session II (W appears on academic transcript)</td>
<td>Wednesday, July 26</td>
</tr>
<tr>
<td>Last day of instruction for six-week session II and full session, including final exams</td>
<td>Friday, Aug. 11</td>
</tr>
<tr>
<td>Deadline for faculty to post grades, noon</td>
<td>Wednesday, Aug. 16</td>
</tr>
</tbody>
</table>
HOME

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).
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 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).

Programs approved after this catalog was published are available in the addendum (p. 16). 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://edir.alaska.edu.

UAF Facts and Figures

- 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 49 states and 48 foreign countries.
- UAF offers 149 degrees and 31 certificates in 115 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 2015

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

Student Profile, Fall 2015

ENROLLMENT

Fairbanks Campus 6,215
Community and Technical College 2,885
Bristol Bay Campus 683
Chukchi Campus 272
Interior Alaska Campus 371
Kuskokwim Campus 529
Northwest Campus 509
eLearning & Distance Education 2,711
University of Alaska Fairbanks (total\(^1\)) 9,870

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

Female 58%
Male 42%
Alaska Native/American Indian 9%
Undergraduate 89%
Graduate 11%
Median Age 25

Estimated 2016-2017 UAF Annual Costs

FRESHMAN AND SOPHOMORES

<table>
<thead>
<tr>
<th></th>
<th>Alaska Resident</th>
<th>Non-Resident</th>
<th>WUE(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and fees(^3) (30 credits, 100-200-level classes)</td>
<td>$7,198</td>
<td>$22,455</td>
<td>$10,194</td>
</tr>
<tr>
<td>Room and board (double room and meal plan)</td>
<td>$8,530</td>
<td>$8,530</td>
<td>$8,530</td>
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<tr>
<td>ANNUAL TOTAL</td>
<td>$15,728</td>
<td>$30,985</td>
<td>$18,724</td>
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JUNIORS AND SENIORS

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<tbody>
<tr>
<td>Tuition and fees(^3) (30 credits, 300-400-level classes)</td>
<td>$8,398</td>
<td>$26,655</td>
<td>$11,994</td>
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<tr>
<td>Room and board (double room and meal plan)</td>
<td>$8,530</td>
<td>$8,530</td>
<td>$8,530</td>
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<tr>
<td>ANNUAL TOTAL</td>
<td>$16,928</td>
<td>$32,185</td>
<td>$20,524</td>
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GRADUATE STUDENTS

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<th>Alaska Resident</th>
<th>Non-Resident</th>
<th>WUE²</th>
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</thead>
<tbody>
<tr>
<td>Tuition and fees (18 credits, 600-level classes)</td>
<td>$9,424</td>
<td>$18,091</td>
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</tr>
<tr>
<td>Room and board (double room and meal plan)</td>
<td>$8,530</td>
<td>$8,530</td>
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</tr>
<tr>
<td>ANNUAL TOTAL</td>
<td>$17,954</td>
<td>$26,621</td>
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</tr>
</tbody>
</table>

² Western Undergraduate Exchange (see Financial Aid (p. 62) page)
³ Includes Wood Center student life, student government, technology, transportation, UA facilities, UA network, athletics, Student Recreation Center and health center fees. Does not include health insurance, books, supplies, parking, sustainability, travel, miscellaneous expenses or special costs associated with international or exchange students. Costs are subject to change.

Accreditation

UAF is accredited by the Northwest Commission on Colleges and Universities (http://www.nwccu.org). Additionally it has the following specialized accreditations, certifications and standards:

- AACSB International
- ABET — Engineering Accreditation Commission
- ABET — Computing Accreditation Commission
- Accrediting Council on Education in Journalism and Mass Communication
- Alaska Police Standards Council
- American Alliance of Museums
- American Bar Association
- American Chemical Society
- American Psychological Association
- Commission on Accreditation of Allied Health Education Programs: Medical Assistant and Paramedic Program
- Commission on Dental Accreditation
- Council on Social Work Education
- Federal Aviation Administration
- National Association for Developmental Education
- National Association of Schools of Music
- National Automotive Technicians Education Foundation
- National Council for the Accreditation of Teacher Education

Campuses

All UAF campuses are tobacco-free as of Dec. 31, 2015.

Fairbanks Campus

The 2,250-acre Fairbanks campus offers limitless opportunities for activity and recreation. The main campus has two lakes and 26 miles of trails as well as a major student recreation complex for indoor sports. Facilities are available for basketball, volleyball, badminton, tennis, calisthenics, dance, gymnastics, judo and karate. There are rifle and pistol ranges; courts for handball, racquetball and squash; a jogging track; a swimming pool; weight training and modern fitness equipment areas; an ice arena for recreational skating and hockey; a special aerobics area; a two-story indoor climbing wall; an outdoor climbing tower covered with ice in the winter; and a winter snowboard terrain park. UAF sponsors intercollegiate athletic teams in men’s and women’s basketball, men’s and women’s cross country running and skiing, coed rifle, men’s ice hockey and women’s volleyball and swimming.

The Wood Center is the focus of many extracurricular activities. With a pub, dining facilities, bowling lanes, conference rooms, lounge and games area, the Wood Center is a gathering place for the entire university community.

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 100,000, 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 degrees and certificates completely online. Internet-based lets 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 program requirements.

For more information contact eLearning & Distance Education in the Bunnell Building on the Fairbanks campus, by phone at 800-277-8060 or 907-479-3444, 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, part of the College of Rural and Community Development, 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.

For more information about the College of Rural and Community Development, visit http://www.uaf.edu/rural/.

**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 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 campus 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’s main campus is at 604 Barnette St., in downtown Fairbanks. At the Student Advising and Registration Center, students can receive academic advising, register and pay for classes, and take placement tests.

Additional CTC locations in Fairbanks and other communities include:

- Aviation Maintenance Program Hangar: 3504 University Ave. South
- Bunnell House Early Childhood Lab School: 703 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
In 1994 the late Chief Peter John of Minto said Athabascan people long ago used to come to Troth Yeddha’ to talk and give advice to one another about what they were going to do. When they learned this place would be used for a university, he said, they decided that the school would be good and would carry on a traditional use of this hill — a place where good thinking and working together would happen.

In recent years numerous facts about the Chena Athabascans of Troth Yeddha’ have been assembled. Until the 1840s a small village was located at a pond at the base of the ridge, where the UAF Physical Plant is now. Place names for water features surrounding the ridge have also been reconstructed.

UAF celebrates and honors the historical place of Alaska’s first peoples. In 2008 the Board of Regents set aside seven acres as Troth Yeddha’ Park. The park will be a venue to celebrate the rich cultures of Alaska Natives and their presence on the Fairbanks campus.

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

Catalog Addendum

The School of Fisheries and Ocean Sciences became the College of Fisheries and Ocean Sciences Sept. 16, 2016.

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.

Education

The School of Education prepares professional educators 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 for Accreditation of Teacher Education, and the Alaska Teacher, Student and Cultural Standards.

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 a 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 community 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 community counseling, cross-cultural education, elementary education, secondary education, special education, curriculum and instruction, language and literacy, 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 practitioners. Faculty research focuses on issues of formal and informal education related to Alaska Native people and
communities, cross-cultural contexts, distance education, indigenous populations 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. 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, mineral preparation engineering and 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 School 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, SFOS offers a minor, Bachelor of Science and Bachelor of Arts in fisheries, 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 SFOS include Master of Science and doctoral degrees in oceanography, marine biology and fisheries. 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 SFOS. The Institute of Marine Science (http://www.ims.uaf.edu), with major laboratory facilities in Fairbanks and Seward, focuses on oceanographic and marine biological research and graduate education. The Kasitsna Bay laboratory (http://www.sfos.uaf.edu/sites/ksbay), near Homer, is the site for coastal research on intertidal and subtidal communities. The Juneau Center (http://www.uaf.edu/sfos/about-us/locations/juneau) focuses on fisheries research and education. The Kodiak Seafood and Marine Science Center (http://www.uaf.edu/sfos/about-us/locations/kodiak/about-kmsmc) is focused on research and extension work in seafood science and sustainable harvest technology. The Marine Advisory Program (http://www.uaf.edu/map) offers public education and outreach statewide from its offices in Anchorage and coastal communities. SFOS 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.sfos.uaf.edu or call 907-474-7824.

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 assistance 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, business administration, economics, and homeland security and emergency management, 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 doctorate in natural resources and sustainability. The School of Management is accredited by the Association to Advance Collegiate Schools of Business (AACSB) International and is one of only 182 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

Scientists, natural resources managers and policymakers are becoming more aware of the complexity and interrelatedness of society and the environment. Implementing sustainable natural resources decisions in contemporary society requires an interdisciplinary approach. Graduates of the School of Natural Resources and Extension use their academic training to facilitate the wise management of renewable resources. The undergraduate program in natural resources management integrates knowledge in natural sciences, policy, forestry, economics and human values to examine the sustainable use of natural resources and decisions regarding their management.

Graduate students may earn one of two types of master’s degrees in natural resources management — one thesis-based and one project-based — and 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 907-474-7083.

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. 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 Alaska Native Science and Engineering Program and K–12 outreach programs, including the Science Potpourri, the Alaska Summer Research Academy, Girls on Ice 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 certificate and associate degree levels, baccalaureate and graduate degrees in rural development, and, in cooperation with the College of Liberal Arts and the School of Education, baccalaureate and graduate degrees in cross-cultural studies, education and social work. In addition, CRCD offers workshops, continuing education and short-term courses, developmental studies, credit for prior learning and other nondegree-oriented services.

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

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 907-474-7083.

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.
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 School of Fisheries and Ocean Sciences (http://www.sfos.uaf.edu).

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

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.ankn.uaf.edu.

For more information, telephone 907-474-1902 or email fycxcs@ankn.uaf.edu.

Center for Global Change and Arctic System Research

The Center for Global Change and Arctic System Research facilitates collaborative research by faculty and students in environmental science and earth system studies. The center sponsors an annual student research grant competition that provides support to students for research related to global change with an Arctic or sub-Arctic focus presented in an interdisciplinary context. The center also participates in education and outreach activities on global change and Arctic system research.

For information on education opportunities in earth system and environmental sciences, see Interdisciplinary Studies (p. 289) in the Degrees and Programs section of this catalog, or call 907-474-5415.

For more information about the center and its activities, visit http://www.cgc.uaf.edu or call 907-474-5818.

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://climdata.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.

For more information, visit http://www.gi.alaska.edu or call 907-474-7282.

### 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.iter.uafl.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.akcfwru.uafl.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.uafl.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 907-474-7412, visit http://www.iab.uafl.edu or follow @ArcticBiology (http://www.twitter.com/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.uafl.edu/smc), a major coastal facility in Seward; the Kasitsna Bay Laboratory (http://www.sfos.uafl.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; OAK1, 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.uafl.edu or call 907-474-7229.

### 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.uafl.edu), Alaska University Transportation Center (http:// ine.uafl.edu/autc), Mineral Industry Research Laboratory (http:// ine.uafl.edu/miril), Petroleum Development Laboratory (http://ine.uafl.edu/ pdl), and Water and Environmental Research Center (http://ine.uafl.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, School of Fisheries and Ocean Sciences**

The Juneau Center is home to nine UAF fisheries faculty members and about 60 graduate students enrolled in the M.S. and Ph.D. fisheries and marine biology programs. Four UAS biology and marine biology faculty hold joint appointments in the SFOS fisheries division 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 in Auke Bay. For more information, visit http://www.sfos.uaf.edu/fishdiv/ 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 http://www.sfos.uaf.edu/ksmsc/.

**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/.

**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.
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.

To meet the need for expanding services for all Alaskans, the University of Alaska statewide system was created in 1975. Campuses in Anchorage and Juneau were assigned their own chancellors and central staffs, with the statewide administration and overall university president remaining in Fairbanks.

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. A $2 million 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.

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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.
TODAY

UAF’s colleges and schools offer degrees and certificates in 115 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, psychology, mathematics and engineering. Master’s degrees are offered in almost 40 fields in the humanities, social sciences, 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 will celebrate 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 2015 was 9,870 students. Of those, 58 percent are female and 42 percent male; 89 percent are undergraduate and 11 percent are graduate students. UAF students hail from 49 states and 48 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 newspaper, 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 12:1 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/. 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/.
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 and the Registrar
University of Alaska Fairbanks
First floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: admissions@uaf.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. The fee should be paid by check, credit card or money order to the University of Alaska Fairbanks. Please do not send cash.
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, DEVM 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 http://www.uaf.edu/admitted/aleks/ to take the ALEKS test.

INTERNATIONAL STUDENTS

See Applying for Admission: International Students (p. 30) 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.

Students 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. Students transferring with fewer than 30 semester hours of credit must submit placement scores from the ACT Plus Writing, SAT or ACCUPLACER test for placement in English or composition courses, and the ALEKS test for placement into math courses. Test results must be less than two years old for English placement and less than one year old for math placement. See Transferring Credits (p. 32) page for more information.

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 conditional acceptance. Acceptance becomes final when the Office of Admissions and the Registrar receives official transcripts showing the student has satisfactorily completed all work in progress and that high school seniors have graduated. Acceptance to UAF is final only when the Office of Admissions and the Registrar 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 and the Registrar. 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 and the Registrar.

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. 90)). 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 and the Registrar.

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 and the Registrar
University of Alaska Fairbanks
First floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: admissions@uaf.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. The fee should be paid by check, credit card or money order to the University of Alaska Fairbanks. Please do not send cash.
   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.

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. 30) 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. 30) 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. 27)) 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. 27)) 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 955. UAF will continue to accept test scores of 1290 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. 27) 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</td>
<td>3-4 cr (includes 1-cr lab science course in biology, chemistry or physics)</td>
<td>2 cr</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

| 4 cr | 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. | 3-4 cr | Physics or Chemistry-1 cr; Natural Sciences-1 cr; Elective-1 cr. Both physics and chemistry are strongly recommended for engineering. | Same as high school core |

College of Liberal Arts • School of Management • College of Rural and Community Development • General Studies (undecided or exploratory)
4 cr
Same as high school core; 3-4 cr
Same as high school core

School of Management students should be well-prepared in mathematics with at least Algebra II, but precalculus or higher is preferred.

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 status within the department of their choice.

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 baccalaureate core 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. Students must have declared a major to participate in the Western Undergraduate Exchange program.

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 credits must only submit prior college transcript(s). Students with less than 30 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. 32) 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 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 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 and the Registrar.

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. 27) 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 exam to determine math placement 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 within the department of their choice. 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

CONDITIONAL 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 conditional acceptance. Acceptance becomes final when the Office of Admissions and the Registrar receives official transcripts showing the student has satisfactorily completed all work in progress and that high school seniors have graduated. Acceptance to UAF is final only when the Office of Admissions and the Registrar 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 and the Registrar. Admission may be postponed for up to one calendar year. Students are required to notify the Office of Admissions and the Registrar 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 and the Registrar.

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. 138)). 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/admissions/other/military/.  

Where to Get More Information
Office of Admissions and the Registrar
University of Alaska Fairbanks
First floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: admissions@uaf.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.

At the latest, applications for graduate admission with all supporting documentation must be received by June 1 for the fall semester and Oct. 15 for the spring semester. Earlier deadlines apply for international applicants.

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 $60 nonrefundable application fee. The fee should be paid by check, credit card or money order to the University of Alaska Fairbanks. Please do not send cash.

2. Submit official transcripts
   The Office of Admissions and the Registrar requires official transcripts of all college-level course work. To be considered official, transcripts must arrive in sealed envelopes from each institution attended.

   Transcripts for International Applicants
   See Applying for Admission: International Students (p. 30) 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. 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 education 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/inds/) 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. 30) 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 clinical-community psychology, justice, 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 and the Registrar 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 conditional, 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 and the Registrar 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 admissions@uaf.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 and the Registrar**
University of Alaska Fairbanks
First floor, Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: admissions@uaf.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 757560
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 Jan. 15 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 as well as meet requirements for U.S. immigration agencies. 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. 25) section.

**UNDERGRADUATE APPLICANTS**

To be admitted to UAF, a student must:

1. Apply online at http://www.uaf.edu/admissions/. The $50 application fee should be paid by check, credit card or money order in U.S. funds to the University of Alaska Fairbanks. Please do not send cash.
2. Send official secondary school and/or university transcripts to an approved credential evaluation agency and request a comprehensive course-by-course credential report. Visit http://www.uaf.edu/
admissions/apply/international/ for a list of approved service providers. 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/. The $60 application fee should be paid by check, credit card or money order in U.S. funds to the University of Alaska Fairbanks. Please do not send cash.
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 education programs, 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.

Required Funding Amounts

The minimum estimated cost for one school year at UAF for an international student is $34,935 for undergraduate students and $34,255 for graduate students. (Students taking College of Engineering and Mines and School of Management courses: $36,040 undergraduate and $35,860 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 $22,325 for an undergraduate and $25,300 for a graduate student. (Students taking College of Engineering and Mines and School of Management courses: $23,430 undergraduate and $26,905 graduate.)

**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</td>
</tr>
<tr>
<td></td>
<td>Whitehorse, Yukon Territory</td>
</tr>
<tr>
<td>China</td>
<td>Harbin, Heilongjiang Province</td>
</tr>
<tr>
<td>Great Britain</td>
<td>Whirty, England</td>
</tr>
<tr>
<td>India</td>
<td>Pune</td>
</tr>
<tr>
<td>Japan</td>
<td>Chitose, Hokkaido Prefecture,</td>
</tr>
<tr>
<td></td>
<td>Kanayama, Nemuro, Noshiro, Obihiro, Saroma, Teshio</td>
</tr>
<tr>
<td>Korea</td>
<td>Incheon</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>Khabarovsky Region, Magadan,</td>
</tr>
<tr>
<td></td>
<td>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. 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 and the Registrar. 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.

**Request to Postpone**

If applicants are unable to attend, they must notify the Office of Admissions and the Registrar 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.

**Where to Get More Information**

**Office of Admissions and the Registrar**

University of Alaska Fairbanks

**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. 34): UA System (p. 34) for a list of substitutions within the University of Alaska system and the Table of GER Substitutions: Non-UA Institutions (p. 33) for substitutions from non-UA institutions.

UAF is a member of the Servicemembers Opportunity Colleges network. For additional information about the SOC program, see http://www.uaf.edu/veterans/soc/ or contact the Office of Admissions and the Registrar.

UAF's transfer credit resource website at http://uaonline.alaska.edu 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 if 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. 244) 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 who has completed the baccalaureate general education requirements of any regionally accredited four-year institution will be considered to have completed the baccalaureate general education requirements (excluding oral intensive and writing intensive) at UAF. The student is responsible for providing an official statement and documentation certifying general education requirements completion at the previous institution.
8. Transfer credit is not included in computation of the UAF GPA except to determine eligibility for graduation with honors.
9. 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.
10. 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.

11. 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 Admissions and the Registrar.

12. 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. 34), or visit http://www.uaf.edu/admissions/apply/transfer/.

<table>
<thead>
<tr>
<th>UAF General Education Courses</th>
<th>Transfer Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 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>ENGL F211X or ENGL F213X</td>
<td>the second half of the introductory composition series at the 100 level or above</td>
</tr>
<tr>
<td>COMM F121X, COMM F131X or COMM F141X</td>
<td>a 100-level or above performance course in fundamentals of speech communication, public speaking or small group communication</td>
</tr>
<tr>
<td>Library and Information Research (0-1 credit)</td>
<td>a 100-level library skills course</td>
</tr>
<tr>
<td>Arts (3 credits)</td>
<td>an introductory course in the arts which does not stress skills acquisition</td>
</tr>
<tr>
<td>Humanities (3-5 credits)</td>
<td>an introductory course in the humanities</td>
</tr>
<tr>
<td>Social Sciences (6 credits)</td>
<td>introductory courses in different social sciences disciplines</td>
</tr>
<tr>
<td>Additional Arts/Humanities/Social Sciences (3-5 credits)</td>
<td>see Arts, Humanities, Social Sciences above</td>
</tr>
<tr>
<td>Ethics (Values and Choices): BA F323X, COMM F300X, JUST F300X, NRM F303X, PHIL F322X or PS F300X</td>
<td>an upper-division course in ethics, or, with approval of the Philosophy Department, a lower-division course in ethics</td>
</tr>
<tr>
<td>MATH F113X, MATH F122X, MATH F151X, MATH F152X or MATH F156X</td>
<td>a 100-level or above mathematics course having a prerequisite of at least two years of high school algebra</td>
</tr>
<tr>
<td>MATH F230X, MATH F251X, MATH F252X, MATH F253X or STAT F200X</td>
<td>a calculus or statistics course at the 100 level or above</td>
</tr>
<tr>
<td>Natural Sciences (8 credits)</td>
<td>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.</td>
</tr>
</tbody>
</table>

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 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. 34). Students should notify the UAF Office of Admissions and 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 baccalaureate general education requirements (excluding the writing and oral intensive upper-division requirements) meets the general education requirements at UAA and UAS.

For more information about transfer credit visit http://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 baccalaureate core courses. 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. 33) or visit http://www.uaf.edu/admissions/apply/transfer/.

<table>
<thead>
<tr>
<th>To meet these UAF General Education course requirements</th>
<th>Use any of these UAA general education courses</th>
<th>Use any of these UAS general education courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRITTEN COMMUNICATION (3 cr)</td>
<td>ENGL A111</td>
<td>ENGL S111</td>
</tr>
<tr>
<td>ENGL F111X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRITTEN COMMUNICATION (3 cr)</td>
<td>ENGL A211, ENGL A212, ENGL A213, ENGL A214;</td>
<td>ENGL S211, ENGL S212</td>
</tr>
<tr>
<td>ENGL F211X or ENGL F213X</td>
<td>ENGL A311, ENGL A312, ENGL A414</td>
<td></td>
</tr>
<tr>
<td>ORAL COMMUNICATION (3 cr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM F121X, COMM F131X or COMM F141X</td>
<td>COMM A111, COMM A235, COMM A237, COMM A241</td>
<td>COMM S111, COMM S235, COMM S237, COMM S241</td>
</tr>
<tr>
<td>ARTS (3 cr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANS F161X; ANS F202X, ANS F223X; ART F200X, ART F261X,</td>
<td>ANTH A215, AKNS A216; ART A160; DNCE A170;</td>
<td></td>
</tr>
<tr>
<td>ART F262X, ENGL F217X; FLPA F105X, FLPA F161X, FLPA F200X,</td>
<td>MUS A121, MUS A124, MUS A215, MUS A216,</td>
<td></td>
</tr>
<tr>
<td>FLPA F215X, FLPA F217X; HUM F201X; JRN F105X, JRN F217X,</td>
<td>MUS A221, MUS A222; THR A111</td>
<td></td>
</tr>
<tr>
<td>MUS F103X, MUS F125X, MUS F200X, MUS F223X NORS F223X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCIAL SCIENCES (6 cr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete two courses in two different disciplines from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT F261X; ANS F242X; ANTH F100X, ANTH F101X, ANTH F111X,</td>
<td>ANTH A101, ANTH A200, ANTH A202, ANTH A250;</td>
<td>ANTH S101, ANTH S202, ANTH S211; ECON S100,</td>
</tr>
<tr>
<td>BA F151X; COMM F180X; ECE F104X; ECON F100X, ECON F201X,</td>
<td>BA A151; CEL A292; ECON A100, ECON A123,</td>
<td>ECON S201, ECON S202; GEOG S101; HIST S105,</td>
</tr>
<tr>
<td>ECON F202X, ECON F235X; GEOG F101X; HIST F100X, HIST F102X,</td>
<td>ECON A201, ECON A202, ECON A210; EDEC A105;</td>
<td>HIST S106, HIST S131, HIST S132; PS S101,</td>
</tr>
<tr>
<td>HIST F122X, HIST F132X; JUST F110X, PS F100X, PS F201X,</td>
<td>ENVI A212; GEOG A101; HIST A101, HIST A102,</td>
<td>PS S102, PS S202, PS S251; PSY S101, PSY</td>
</tr>
<tr>
<td>RD F200X, SWK F103X, SOC F100X, SOC F201X; WGS F201X</td>
<td>HIST A121, HIST A122, HIST A131, HIST A132,</td>
<td>S250; SOC S101, SOC S201</td>
</tr>
<tr>
<td></td>
<td>HIST A341; HNRS A292; HS A220; INTL A101;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JPC A204; JUST A110, JUST A251, JUST A330,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JUST A375; LEGL A101; LSSS A111; PS A101;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PS A102, PS A311, PS A351; PSY A111, PSY A150,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSY A200; SOC A101, SOC A110, SOC A201, SOC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A202, SOC A251, SOC A342, SOC A351; SWK A106,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SWK A243; URS A121; WS A200</td>
<td></td>
</tr>
</tbody>
</table>

HUMANITIES (3-5 cr)

Complete one of the following:

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F261X; ANS F242X; ANTH F100X, ANTH F101X, ANTH F111X,</td>
</tr>
<tr>
<td>BA F151X; COMM F180X; ECE F104X; ECON F100X, ECON F201X,</td>
</tr>
<tr>
<td>ECON F202X, ECON F235X; GEOG F101X; HIST F100X, HIST F102X,</td>
</tr>
<tr>
<td>HIST F122X, HIST F132X; JUST F110X, PS F100X, PS F201X,</td>
</tr>
<tr>
<td>RD F200X, SWK F103X, SOC F100X, SOC F201X; WGS F201X</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
**ANL F141X, ANL F142X, ANL F251X, ANL F255X;**
**ANLG F101X, ANLG F202X, ENGL F200X, ENGL F270X, ESK F101X, ESK F102X,**
**ESK F111X, ESK F112X; FL F200X, FREN F101X,**
**FREN F102X, GER F101X, GER F102X, JPN F101X,**
**JPN F102X; LING F101X, LING F216X; PHIL F102X,**
**PHIL F104X; RELG F221X; RUSS F101X, RUSS F102X,**
**SPAN F101X, SPAN F102X; AKNS A101A, AKNS A101B,**
**AKNS A101C, AKNS A102A, AKNS A102B, AKNS A102C,**
**ASL A101, ASL A102, ASL A201, ASL A202,**
**ART A261, ART A262, ART A360A, ART A360B,**
**CHIN A101, CHIN A102, CHIN A201, CHIN A202,**
**ENGL A121, ENGL A201, ENGL A202, ENGL A301,**
**ENGL A302, ENGL A306, ENGL A307, ENGL A310,**
**ENGL A383, ENGL A445; FREN A101, FREN A102,**
**FREN A201, FREN A202, FREN A301, FREN A302,**
**GER A101, GER A102, GER A201, GER A202,**
**GER A301, GER A302; HIST A101, HIST A102,**
**HIST A121, HIST A122, HIST A131, HIST A132,**
**HIST A341; HNRS A192; HUM A211, HUM A212,**
**JPN A101, JPN A102, JPN A201, JPN A202,**
**LING A101, PHIL A101, PHIL A201, PHIL A211,**
**PHIL A212, PHIL A313, PHIL A314; PS A331,**
**PS A332, PS A333; RUSS A101, RUSS A102,**
**RUSS A201, RUSS A202, RUSS A301, RUSS A302,**
**SPAN A101, SPAN A102, SPAN A201, SPAN A202,**
**SPAN A301, SPAN A302, THR A311, THR A312,**
**THR A411, THR A412**

**Additional ARTS/HUMANITIES/SOCIAL SCIENCES (3-5 cr)**
Complete one additional course from the Arts, Humanities or Social Sciences courses listed above.

**ETHICS (3 cr)**
Complete one of the following:

| BA F323X; COMM F300X; JUST F300X; NRM F303X; PHIL F322X; PS F300X | PHIL A301, PHIL A305 | PHIL S301 |

**MATHMATICS (3-4 cr)**
Complete one of the following:

| MATH F113X, MATH F122X, MATH F151X, MATH F152X, MATH F156X, MATH F230X, MATH F251X, MATH F252X, MATH F253X, STAT F200X | MATH A115, MATH A121, MATH A151, MATH A152, MATH A155, MATH A221, MATH A251, MATH A252, MATH A253, STAT A252, STAT A307, STAT A308, STAT A309, STAT A310, STAT A311, STAT A312, | MATH S113, MATH S151, MATH S152, MATH S251, MATH S252, STAT S107, STAT S273 |

**NATURAL SCIENCES (8 cr)**
Complete two of the following:

| ATM F101X, BIOL F100X, BIOL F103X, BIOL F104X, BIOL F115X, BIOL F116X, BIOL F210X, BIOL F213X, BIOL F214X, CHEM F100X, CHEM F103X, CHEM F104X, CHEM F105X, CHEM F106X, CHEM F111X, GEOG F111X, GEOS F100X, GEOS F101X, GEOS F106X, GEOS F112X, GEOS F120X, MSL F111X, PHYS F102X, PHYS F103X, PHYS F104X, PHYS F115X, PHYS F175X, PHYS F211X, PHYS F212X, PHYS F213X | (OR complete UAA requirement of 7 cr, one of which must be a lab course) Lab Courses: ASTR A103 & ASTR 103L, ASTR A104 & ASTR A104L; BIOL A102 & BIOL A103, BIOL A108, BIOL A111, BIOL A112, BIOL A178 & BIOL A179; CHEM A103 & CHEM A103L, CHEM A104 & CHEM A104L, CHEM A105 & CHEM A105L, CHEM A106L & CHEM A106L; ENVI A211 & ENVI A211L; GEOL A111 & GEOL A111L, GEOL A115 & GEOL A115L, GEOL A178 & GEOL A179, GEOL A221; LSIS A102, LSIS A201, LSIS A202; PHYS A123 & PHYS A123L, PHYS A124 & PHYS A124L, PHYS A211 & PHYS A211L, PHYS A212 & PHYS A212L | (OR complete UAS requirement of 7 cr, one of which must be a lab course) Lab Courses: BIOL S103, BIOL S104, BIOL S105, BIOL S106, BIOL S111, BIOL S112; CHEM S103, CHEM S105, CHEM S106, ENV S102; GEOL S104; PHYS S102, PHYS S103, PHYS S104, PHYS S211, PHYS S212 Non-lab Courses: ANTH S205; ASTR S225; CHEM S100; GEO S105, OCN S101; PHIL S206 |

Lab Courses:

- ASTR A103 & ASTR 103L
- ASTR A104 & ASTR A104L
- BIOL A102 & BIOL A103, BIOL A108, BIOL A111, BIOL A112, BIOL A178 & BIOL A179
- CHEM A103 & CHEM A103L, CHEM A104 & CHEM A104L, CHEM A105 & CHEM A105L, CHEM A106L & CHEM A106L
- ENVI A211 & ENVI A211L
- GEOL A111 & GEOL A111L, GEOL A115 & GEOL A115L, GEOL A178 & GEOL A179, GEOL A221
- LSIS A102, LSIS A201, LSIS A202
- PHYS A123 & PHYS A123L, PHYS A124 & PHYS A124L, PHYS A211 & PHYS A211L, PHYS A212 & PHYS A212L

Non-lab Courses:

- ASTR S225
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 (p. 37) in the table below. 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. 37) 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. 38) 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 and the Registrar 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 Admissions and 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/core credit waiver form and file it with the Office of Admissions and 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 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. 39) table). To receive IB credit, students should submit an official copy of their IB exam results to the Office of Admissions and 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 F101(^1)</td>
<td>3</td>
</tr>
<tr>
<td>Calculus</td>
<td>MATH F251X</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry, General</td>
<td>CHEM F105X/CHEM F106X</td>
<td>8</td>
</tr>
<tr>
<td>College Composition</td>
<td>ENGL F111X</td>
<td>3</td>
</tr>
<tr>
<td>College Mathematics(^1)</td>
<td>Mathematics elective credits</td>
<td>3</td>
</tr>
<tr>
<td>Financial Accounting</td>
<td>ACCT F261X</td>
<td>3</td>
</tr>
<tr>
<td>French (College level)</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 (College level)</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 U.S. I</td>
<td>HIST F131(^2)</td>
<td>3</td>
</tr>
<tr>
<td>History of the U.S. II</td>
<td>HIST F132X</td>
<td>3</td>
</tr>
<tr>
<td>Human Growth and Development</td>
<td>PSY F240(^2)</td>
<td>3</td>
</tr>
<tr>
<td>Humanities(^1)</td>
<td>Humanities elective credits(^3)</td>
<td>6</td>
</tr>
<tr>
<td>Natural Sciences(^1)</td>
<td>Natural sciences elective credits</td>
<td>6</td>
</tr>
<tr>
<td>Precalculus</td>
<td>MATH F151X/MATH F152X</td>
<td>4/3</td>
</tr>
<tr>
<td>Principles of Macroeconomics</td>
<td>ECON F202X</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Microeconomics</td>
<td>ECON F201X</td>
<td>3</td>
</tr>
<tr>
<td>Psychology (Introductory)</td>
<td>PSY F101X</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences/History(^1)</td>
<td>Social sciences elective credits(^2)</td>
<td>6</td>
</tr>
<tr>
<td>Sociology (Introductory)</td>
<td>SOC F100X</td>
<td>3</td>
</tr>
<tr>
<td>Spanish (College level)</td>
<td>SPAN F101X/SPAN F102X</td>
<td>5/5</td>
</tr>
<tr>
<td></td>
<td>SPAN F201/SPAN F202</td>
<td>3/3</td>
</tr>
<tr>
<td>Western Civilization I</td>
<td>HIST F101(^2)</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization II</td>
<td>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 baccalaureate general education requirement.

The Table of GER Substitutions: Non-UA Institutions (p. 33) guidelines determine which courses may meet baccalaureate general education requirements.

Must have minimum score of 50 in order to receive UAF credit, with the exception of foreign language exams (p. 36) where score determines 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: 2-D, 3-D or Drawing</td>
<td>Art electives&lt;sup&gt;1&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 F101/CHNS F102</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>ENGL F111X</td>
<td>3</td>
</tr>
<tr>
<td>English Literature &amp; Composition</td>
<td>ENGL 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/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: U.S.</td>
<td>PS F101&lt;sup&gt;2&lt;/sup&gt;</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/MUS F133</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: Mechanics</td>
<td>PHYS F211X</td>
<td>4</td>
</tr>
<tr>
<td>Physics C: Electricity and Magnetism</td>
<td>PHYS F212X</td>
<td>4</td>
</tr>
<tr>
<td>Psychology</td>
<td>PSY F101X</td>
<td>3</td>
</tr>
<tr>
<td>Spanish Language</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>U.S. History</td>
<td>HIST F131/HIST F132X</td>
<td>6</td>
</tr>
<tr>
<td>World History</td>
<td>HIST F100X</td>
<td>3</td>
</tr>
</tbody>
</table>

<sup>1</sup> Portfolios may be submitted to the Art Department for further evaluation.

<sup>2</sup> Can be used to meet the Social Sciences general education requirement.

<sup>3</sup> Can be used to meet the Humanities general education requirement.

X = Course meets baccalaureate general education requirement.

The Table of GER Substitutions: Non-UA Institutions (p. 33) guidelines determine which courses may meet baccalaureate general education requirements.

Must have minimum score of 3 in order to receive UAF credit. Effective fall 2016, a score of 4 or 5 will be required for Calculus AB and BC.
# 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>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>Japanese</td>
<td>SL</td>
<td>JPN F101X/JPN F102X</td>
<td>8</td>
</tr>
<tr>
<td>Japanese</td>
<td>HL</td>
<td>JPN F101X/JPN F102X</td>
<td>10</td>
</tr>
<tr>
<td>History of Europe &amp; the Islamic World</td>
<td>HL</td>
<td>HIST F100X substitute</td>
<td>3</td>
</tr>
<tr>
<td>Latin</td>
<td>HL</td>
<td>LAT F101X/LAT F102X</td>
<td>6</td>
</tr>
<tr>
<td>Language A1 (English)</td>
<td>HL</td>
<td>ENGL F111X and</td>
<td>3</td>
</tr>
<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>
</tr>
<tr>
<td>Mathematics and Further Math</td>
<td>HL</td>
<td>MATH F251X, MATH F252X</td>
<td>8</td>
</tr>
<tr>
<td>SL</td>
<td>MATH elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Philosophy</td>
<td>HL</td>
<td>PHIL F102X</td>
<td>3</td>
</tr>
<tr>
<td>Physics</td>
<td>SL</td>
<td>PHYS F103X</td>
<td>4</td>
</tr>
<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>
</tr>
<tr>
<td>Russian</td>
<td>HL</td>
<td>RUSS F101X/RUSS F102X</td>
<td>10</td>
</tr>
<tr>
<td>Social &amp; Cultural Anthropology</td>
<td>SL</td>
<td>ANTH F100X substitute</td>
<td>3</td>
</tr>
<tr>
<td>Spanish</td>
<td>SL</td>
<td>SPAN F101X/SPAN F102X</td>
<td>10</td>
</tr>
<tr>
<td>Spanish</td>
<td>HL</td>
<td>SPAN F101X/SPAN F102X</td>
<td>10</td>
</tr>
<tr>
<td>Theatre</td>
<td>SL</td>
<td>THR F200X</td>
<td>3</td>
</tr>
<tr>
<td>Theatre</td>
<td>HL</td>
<td>THR F200X</td>
<td>3</td>
</tr>
<tr>
<td>20th-C World History: History of Africa</td>
<td>HL</td>
<td>HIST F100X substitute</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>20th-C World History: History of Asia &amp; Oceania</td>
<td>HL</td>
<td>HIST F100X substitute</td>
<td>3</td>
</tr>
<tr>
<td>20th-C World History: History of Europe &amp; the Middle East</td>
<td>HL</td>
<td>HIST F100X substitute</td>
<td>3</td>
</tr>
<tr>
<td>Visual Arts</td>
<td>HL</td>
<td>ART F105/ART F161</td>
<td>6</td>
</tr>
</tbody>
</table>

¹ Can be used to meet the Humanities general education requirement.

X = Course meets baccalaureate general education requirement.
The Table of GER Substitutions: Non-UA Institutions (p. 33) guidelines determine which courses may meet baccalaureate general education requirements.

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

Must have minimum score of 4 (or 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 ENGL F211X or ENGL F213X (see English, Developmental English and Developmental Studies Course Placement Scores (p. 41) table) may receive local advanced placement credit for ENGL F111X upon completion of ENGL F211X or ENGL F213X with a grade of C or better.
  
  Students who have received transfer credit that substitutes for ENGL F211X or ENGL F213X with a grade of C or better and who meet the ACT or SAT test score requirement may also receive credit for ENGL F111X.
  
  To receive this credit, students must submit the Application for ENGL F111X Credit form to the Office of Admissions and the Registrar. The form is available at the Office of Admissions and 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 catalogue). Credit received for prior learning does not affect your GPA and is not considered residence credit.

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.

**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 general education 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 general education 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 COMM F141X will be considered only if, in the opinion of a member of the Communication Department faculty, a student presents evidence of substantive prior experience in formal public speaking situations (competency testing is not available for COMM F131X). Neither prior oral intensive course work nor COMM 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 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 COMM 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 at 907-474-6591 or 503 Gruening.

**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 (see academic calendar (p. 10) for the Fairbanks campus). 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, available at http://uaonline.alaska.edu or 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 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. 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. Academic advising is available at several campuses. See Services and Resources (p. 70) for more information.

**Nondegree Students**

Anyone who wants to attend classes at UAF as a nondegree student may register as long as they have the appropriate permissions. Students under the age of 18 may take courses as a nondegree student. Current high school students should refer to the High School and Secondary School Students section below.

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. 244).

**High School and Secondary School Students**

High school and secondary students may take classes at UAF. One program, Alaska Higher Education Admission Decision, requires formal admittance to UAF (see Admissions Requirements (p. 26)). Secondary student enrollment and TECH PREP, however, do not entail formal admission.

- **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. **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.

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 DEV M F105 or above and ENGL F111X placement to register for core 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 Admissions and the Registrar or the local regional campus registration office before you can register for DEV M, 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 Admissions and 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 must 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 core 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 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. An instructor also has the right to waive a course prerequisite if the instructor documents that the student possesses the background required to succeed in the class. 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. 43) 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. 43) table and if the student’s high school cumulative GPA is 3.0 or higher, the student may be given permission to enroll in ENGL 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>ACT English + Reading Total Combined Score</th>
<th>SAT Writing + Critical Reading Total Combined Score (400-1600)</th>
<th>SAT Redesigned¹ Evidence Based Reading + Writing Total Combined Score (200-800)</th>
<th>ACCUPLACER Sentence Skills + Reading Comprehension Total Combined Score</th>
<th>ASSET Form B2 Writing Skills + Form B2 Reading Skills Total Combined Score</th>
<th>UAF Writing Sample For Use with ASSET Form B2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F211X or ENGL F213X²</td>
<td>60-72</td>
<td>1340-1600</td>
<td>710-800</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ENGL F111X</td>
<td>36-59</td>
<td>860-1330</td>
<td>480-700</td>
<td>170-240</td>
<td>82-107</td>
<td>19-25</td>
</tr>
<tr>
<td>DEVE F109</td>
<td>30-35</td>
<td>760-850</td>
<td>430-470</td>
<td>140-169</td>
<td>76-81</td>
<td>16-18</td>
</tr>
<tr>
<td>DEVE F104/DEVS F105³, DEVE F194</td>
<td>26-29</td>
<td>680-750</td>
<td>390-420</td>
<td>110-139</td>
<td>70-75</td>
<td>12-15</td>
</tr>
<tr>
<td>Adult Basic Education⁵</td>
<td>2-17</td>
<td>400-530</td>
<td>200-320</td>
<td>0-79</td>
<td>46-65</td>
<td>0-8</td>
</tr>
</tbody>
</table>

¹ The SAT Redesigned administered starting March 2016.
² Students with ACT or SAT scores that place them in ENGL F211X or ENGL F213X may receive local advanced placement credit for ENGL F111X upon completion of ENGL F211X or ENGL F213X with a grade of C or better. To receive this credit, students must submit the Application for ENGL F111X Credit form to the Office of Admissions and the Registrar.
³ DEVS F105 should be taken concurrently with DEVE F104 and should be used to supplement DEVE F104, not replace it. Trial course DEVE F194 – Writing and Reading Strategies (4 credits) may be taken in place of DEVE F104 and DEVS F105.
⁴ DEVS F052 should be taken concurrently with DEVE F060 and should be used to supplement DEVE F060, not replace it. Trial course DEVE F094 – Basic Writing and Reading (4 credits) may be taken in place of DEVE F060 and DEVS F052.
⁵ For an Adult Basic Education program listing, go to www.jobs.alaska.gov/abe (http://www.jobs.alaska.gov/abe)

Note: ENGL F111X-plus pairs a section of ENGL F111X with DEVE F068. Qualifying students are those who have a combined ACCUPLACER 135-169 score and are referred by their academic advisor to the director of University Writing to interview for the program. DEVE F068 is a writing support group tutorial class, recommended based on the student’s needs for writing assistance along with any DEVE or ENGL writing course listed in the table. Students may take up to 3 credits of DEVE F068 per semester for as many semesters as needed.

### 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. 136) 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. 43) 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 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</td>
<td>55-77</td>
</tr>
<tr>
<td>DEVM F105, DEVM F105N, MATH F113X (DEVM F071, DEVM F105G, DEVM F105H, DEVM F105J)</td>
<td>30-54</td>
</tr>
</tbody>
</table>
Registration

**Note:** DEVM F051 is appropriate for students preparing for the High School Qualifying Exam in Alaska or those needing a review of basic math skills. DEVM F065 assists students in reviewing and reinforcing course concepts covered by DEVM F054–DEVM F105.

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

### 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 at [http://www.uaf.edu/register/](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 Admissions and 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>Second Friday after the first day of instruction for the semester</td>
<td>Advisor’s signature not required</td>
</tr>
<tr>
<td>Dropping a class (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>Advisor’s signature required for student in degree program after the second Friday after the first day of instruction</td>
</tr>
<tr>
<td>Faculty-initiated drop (class does not appear on transcript)</td>
<td>First day of instruction for the semester</td>
<td>Last day of the second week of instruction for the semester</td>
<td>Faculty member will notify the Office of Admissions and the Registrar</td>
</tr>
<tr>
<td>Withdrawing from a class (class appears on transcript with W grade)</td>
<td>After the third Friday after the first day 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>Dropping or withdrawing from all classes</td>
<td>First day of registration 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 third Friday after the first day 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 Admissions and the Registrar. Students receive an email notification at their UAF account.</td>
</tr>
<tr>
<td>Late withdrawal from a class(^3)</td>
<td>After the last day for student-initiated withdrawals</td>
<td>Last day of instruction for the semester</td>
<td>Advisor’s signature required for student in degree program.</td>
</tr>
<tr>
<td>Appeal for late withdrawal</td>
<td>After the last day for student-initiated withdrawals</td>
<td>30 class days after the beginning of the next regular semester</td>
<td>Reviewed by a campus appeals committee</td>
</tr>
</tbody>
</table>

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

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### NONATTENDANCE 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.

#### Composition
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 Admissions and 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 Admissions and 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 from http://www.uaf.edu/reg/forms/ or pick up a copy at the Office of Admissions and the Registrar. Submit the completed form to the Office of Admissions and the Registrar.

Where to Get More Information

Office of Admissions and the Registrar
University of Alaska Fairbanks
102 Signers’ Hall
P.O. Box 757480
Fairbanks, AK 99775-7480
Email: registrar@uaf.edu
Online: http://www.uaf.edu/reg/
Telephone: 907-474-7500
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

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 that you regularly check your university email address or forward email from your UAF address to an address you check frequently.

The university automatically assigns each student an official UAF email account when the student enrolls (except students whose primary registration is through Bristol Bay, Chukchi, Interior Alaska, Kuskokwim or Northwest campuses). If you have multiple UAF email accounts, you should forward them to the one you check most often. You’re responsible for knowing — and when appropriate, acting on — the contents of all university communications sent to your official UAF email account.

All notifications regarding waitlisted courses will be sent to your student-preferred email address. To receive these important notifications be sure your email is current and you have selected your preferred student email at UAOnline.

If you want to receive university communications at a different email address, you need to forward email from your assigned UAF account to an email address of your choice. You can easily do this online at http://www.alaska.edu/google/.

Class Standing

Undergraduate Students

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

| First-year | 0-29 credits |
| Sophomore | 30-59 credits |
| Junior | 60-89 credits |
| Senior | 90 or more credits |

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

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 16 or 17 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.

Credits carried at any UA unit (or any combination of UAF/UA/UA) are used to determine study load hours and full-time or part-time classification. Audited courses, courses taken for credit by examination and yearlong correspondence study courses 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 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, dean and the dean of the graduate school.

Enrollment in the three-week summer session is limited to 3-4 credits per session, and enrollment in the six-week summer session is limited to 6-8 credits per session.

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

Grading Options

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 for 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.

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.

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>P</td>
<td>Pass</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>D</td>
<td>Declined</td>
</tr>
<tr>
<td>A</td>
<td>Accepted</td>
</tr>
<tr>
<td>B</td>
<td>Approved</td>
</tr>
<tr>
<td>C</td>
<td>Consented</td>
</tr>
<tr>
<td>D</td>
<td>Denied</td>
</tr>
<tr>
<td>F</td>
<td>Failed</td>
</tr>
<tr>
<td>AU</td>
<td>Audit</td>
</tr>
<tr>
<td>DF</td>
<td>Deferred</td>
</tr>
<tr>
<td>NB</td>
<td>No Basis</td>
</tr>
<tr>
<td>NS</td>
<td>Not Submitted</td>
</tr>
</tbody>
</table>

The class grade will be computed as a failing grade, unless an action is taken. In most cases an incomplete grade must be made up within one year or it will automatically be changed to an F grade. A grade of AU (audit) is granted to students who complete an audited course, but no credit is awarded. 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.

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.

Indicates credit was given under the credit/no-credit option.
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.
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.
Withdrawn — Indicates withdrawal from a course after the first two weeks of a semester.
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. Instructors include a statement of work required of the student to complete the course at the time the I grade is assigned, and a copy of the notice of the incomplete grade will be sent to the dean of the school or college in which the course is given. 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.
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.
Not Submitted — Grade not submitted by instructor.
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.

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 F213X</td>
<td>4</td>
<td>A</td>
<td>4 cr × 4 pts</td>
<td>16</td>
</tr>
<tr>
<td>COMM F131X</td>
<td>3</td>
<td>D+</td>
<td>3 cr × 1.3 pts</td>
<td>3.9</td>
</tr>
<tr>
<td>ENGL F111X</td>
<td>3</td>
<td>C</td>
<td>3 cr × 1.7 pts</td>
<td>5.1</td>
</tr>
<tr>
<td>MATH F122X</td>
<td>3</td>
<td>B−</td>
<td>3 cr × 2.7 pts</td>
<td>8.1</td>
</tr>
<tr>
<td>HIST F131</td>
<td>3</td>
<td>F</td>
<td>3 cr × 0 pts</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td></td>
<td></td>
<td>33.1 grade points</td>
</tr>
</tbody>
</table>

33.1 grade points ÷ 16 credits = 2.07 GPA

Attendance
UAF is committed to student success and academic integrity. UAF faculty expect that students are committed to academic achievement. You are expected to adhere to the class attendance policies set by your instructors.

General Absences: If you miss class, you are responsible for conferring with your instructor as soon as possible concerning your absence, and to discuss the possibilities for arranging alternative learning opportunities. Note that some departments drop students who miss the first day of class and who fail to obtain their instructor’s prior approval for the absence.

UAF-Sanctioned Absences: If you are scheduled to miss class for an academic requirement or to represent UAF in an official capacity (e.g., NCAA athletic competition, music performance), you must notify your instructor in writing by the first Wednesday of the semester in which the absences will occur. The notification should list all scheduled absences and bear the signature of a UAF school official.

Instructors are encouraged to make reasonable accommodations for students who miss class to participate in these official, UAF-recognized activities. However, it is your responsibility to follow up the notification of absence by discussing alternative learning opportunities with your instructors before the end of the drop/add period (typically the second Friday of the semester). Doing so will allow you to drop the class and to add another if, after a good faith effort, you and your instructor cannot arrange for comparable learning opportunities that would enable you to be successful in the class.

Academic Progress
Early progress reports help students gauge their class performance and, if necessary, seek assistance early in the term. Instructors are responsible for ensuring that students are aware of the grading policy for a course and that homework, exams and other assignments are returned to students in a timely manner. Instructors are asked to submit early progress reports within the first six weeks of the semester.

Academic Standards
UAF’s scholastic standards are designed to help students take action before their academic record deteriorates to the point that readmission to UAF or another institution is difficult. In all cases involving poor
scholarship, students are encouraged to consult with their advisor, instructors or dean.

Undergraduate and certificate students are subject to scholastic action if they fail to earn a GPA of 2.0 at the end of the semester. Scholastic action may result in warning, probation or disqualification from the university.

**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 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 Admissions and 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/uafgov/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 Admissions and the Registrar and at the Dean of Students' office.

**Academic Decisions Other Than Grades**

Students who want to appeal an academic decision such as 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) must submit an appeal within 30 class days after the beginning of the next regular semester.

To appeal academic decisions, 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 informal review decision acceptable, the student may initiate a formal appeal procedure. Formal appeals must be made in writing and must be received by the provost no later than 10 days after the student has learned the outcome of the informal review. The offices of the provost, university registrar, vice chancellor of students or dean of the graduate school (for graduate student issues) can give you advice and answers to questions about the process.

By submitting a request for a review, the student acknowledges that no additional mechanisms exist within the university for the review of the decision, and that the university’s administration can not influence or affect the outcome of the review. For the detailed “Appeals Policy For Academic Decisions” go to http://www.uaf.edu/uafgov/faculty-senate/policies-procedures/appeals-policy-for-academ/.

**Academic Appeals Advisor**

The academic appeals advisor helps undergraduate students with the policies and procedures associated with grade appeals, appeals policy for academic decisions other than assignment of grades, academic petitions and financial aid satisfactory progress appeals.

The academic appeals advisor is a professional academic advisor in the Academic Advising Center. The academic appeals advisor helps students determine whether the appeal or petition is appropriate, reviews documentation relevant to the appeal or petition, and navigates the process for the appeal or petition submission. In the preceding sentence, “appropriate” does not refer to whether an appeal is likely to be successful, but rather whether the appeal falls within the purview of the grade or academic decisions appeal process. The academic appeals advisor does not guarantee the appeal or petition will be successful and will not comment on the likelihood of acceptance. Students are responsible for writing the appeal or petition, for gathering and recording relevant documentation, and for submitting the appeal or petition with the proper signatures.

Contact the Academic Advising Center at 907-474-6396 or uaf-advising@alaska.edu.

**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/deanofstudents/. 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**

UAF students are subject to the Student Code of Conduct. In accordance with board of regents policy 09.02.01, UAF will maintain an academic environment in which freedom to teach, conduct research, learn and administer the university is protected. Students will benefit from this environment by accepting responsibility for their role in the academic community. The principles of the student code are designed to encourage
communication, foster academic integrity and defend freedoms of inquiry, discussion and expression across the university community.

UAF requires students to conduct themselves honestly and responsibly, and to respect the rights of others. Conduct that unreasonably interferes with the learning environment or violates the rights of others is prohibited. Students and student organizations are 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 by the university.

The university may initiate disciplinary action and impose disciplinary sanctions against 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 or property
c. damage or destruction of property
d. theft of property or services
e. harassment
f. endangerment, assault or infliction of physical harm
g. disruptive or obstructive actions
h. misuse of firearms, explosives, weapons, dangerous devices or dangerous chemicals
i. failure to comply with university directives
j. misuse of alcohol or other intoxicants or drugs
k. violation of published university policies, regulations, rules or procedures
l. any other actions that result in unreasonable interference with the learning environment or the rights of others.

This list is not intended to define prohibited conduct in exhaustive terms, but rather offers examples as guidelines for acceptable and unacceptable behavior.

Honesty is a primary responsibility of yours and every other UAF student. The following are common guidelines regarding academic integrity:

1. Students will not collaborate on any quizzes, in-class exams or take-home exams that contribute to their grade in a course unless the course instructor grants permission. Only those materials permitted by the instructor may be used to assist in quizzes and examinations.
2. Students will not represent the work of others as their own. Students will attribute the source of information not original with themselves (direct quotes or paraphrases) in compositions, theses and other reports.
3. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors.

Alleged violations of the Code of Conduct will be reviewed in accordance with procedures specified in regents policy, university regulations and UAF rules and procedures. For additional information and details about the Student Code of Conduct, please visit http://www.uaf.edu/deanofstudents/.

### 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 dean of students 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 Admissions and 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 Admissions and 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 Admissions and 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 Admissions and 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/.

Non-discrimination Policy and Disclaimer

It is the policy of the University of Alaska Fairbanks to provide equal education and employment opportunities and to provide services and benefits to all students and employees without regard to race, creed, color, religion, national origin, sex, age, disability, status as a Vietnam-era or disabled veteran, marital status, changes in marital status, pregnancy or parenthood, pursuant to laws enforced by the Department of Education and the Department of Labor, including Presidential Executive Order 11246, as amended, Title VI and Title VII of the 1964 Civil Rights Act, Title IX of the Education Amendments of 1972, the Public Health Service Act of 1971, the Veteran’s Readjustment Assistance Act of 1974, the Vocational Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination in Employment Act of 1967, the Equal Pay Act of 1963, the 14th Amendment, and Alaska Statutes Title 18, Chapter 80 and Title 14, Chapter 18. Inquiries regarding application of these and other regulations should be directed either to the University of Alaska Fairbanks, Assistant Director of Human Resources, 108 College Road, phone 907-474-6259 or the Director of the Office of Equal Opportunity, 316 Signers’ Hall, phone 907-474-7599, Equal Employment Opportunity Commission; the Office of Civil Rights, Department of Education, Washington, D.C.; or to the Office of Federal Contract Compliance Programs, Department of Labor, Washington, D.C.

This catalog and its contents shall not be construed as a contract between the University of Alaska Fairbanks and prospective or enrolled students. The catalog is merely a vehicle of information, including university policies, regulations, rules and procedures. Although every effort is made to ensure its correctness, regulations of the university and its program requirements change from time to time during the period any student is attending the University of Alaska Fairbanks; to the extent there is a conflict between this catalog and university policies, regulations, rules or procedures, the university policies, regulations, rules or procedures will control.

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.

UAF is accredited by the Northwest Commission on Colleges and Universities, 8060 165th Ave. NE, Suite 100, Redmond, WA 98052.

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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/.
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 2016-2017 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.

2016-2017 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>$192/credit</td>
<td>$681/credit</td>
</tr>
<tr>
<td>300-400-level courses</td>
<td>$232/credit</td>
<td>$721/credit</td>
</tr>
<tr>
<td>500-level courses</td>
<td>varies</td>
<td>varies</td>
</tr>
<tr>
<td>600-level courses</td>
<td>$444/credit</td>
<td>$907/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; or
- 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; or
- other documentation of Alaska residency for the two prior years deemed satisfactory by the UAF Office of Admissions and the Registrar.

Students applying for resident tuition assessment must file a residency form with the Office of Admissions and the Registrar 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 and the Registrar.

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 and the Registrar.
Basic Student Fees

<table>
<thead>
<tr>
<th>Basic Student Fees</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASUAF</td>
<td>$42</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>
</tbody>
</table>

<table>
<thead>
<tr>
<th>International Student Health Insurance</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>$1,195</td>
</tr>
<tr>
<td>Fall semester</td>
<td>$436</td>
</tr>
<tr>
<td>Spring semester</td>
<td>$433</td>
</tr>
<tr>
<td>Spring/summer</td>
<td>$759</td>
</tr>
<tr>
<td>Summer</td>
<td>$327</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parking Permit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 credits or fewer</td>
<td>$41</td>
</tr>
<tr>
<td>9 or more credits</td>
<td>$78</td>
</tr>
<tr>
<td>Annual permit</td>
<td>$143</td>
</tr>
<tr>
<td>Spring/summer</td>
<td>$143</td>
</tr>
<tr>
<td>Multivehicle</td>
<td>additional $10</td>
</tr>
</tbody>
</table>

Student Health and Counseling Center

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall or spring semester</td>
</tr>
<tr>
<td>Summer semester (6 or more credits)</td>
</tr>
</tbody>
</table>

Student Recreation Center

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$75</td>
</tr>
</tbody>
</table>

Student Sustainability

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20</td>
</tr>
</tbody>
</table>

Technology

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5/credit to a maximum of $60</td>
</tr>
</tbody>
</table>

Transportation

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 credits</td>
</tr>
<tr>
<td>4 or more credits</td>
</tr>
</tbody>
</table>

UA Facilities

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$6 per credit</td>
</tr>
</tbody>
</table>

UA Network

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 percent of tuition</td>
</tr>
</tbody>
</table>

Wood Center Student Life

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-8 credits</td>
</tr>
<tr>
<td>9 or more credits</td>
</tr>
</tbody>
</table>

Note: All fees are subject to change.

ASUAF

Cost: $42 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 Associated Students of the University of Alaska Fairbanks represents student views and concerns to the university administration, University of Alaska 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; and KSUA, the student radio, as well as other multimedia. Other services provided through ASUAF include a half-hour attorney consultation, academic travel funding, international student identification cards, subsidized student club activities and much more. Contact ASUAF at 907-474-7355 or visit http://www.asuafstudentgov.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.

HEALTH INSURANCE

Cost: Annual — $1,195; fall semester 2016 — $436; spring semester 2017 — $433; spring/summer — $759; summer 2017 — $327

Who pays: Students with F-1 and J-1 visas (including Canadian students) must have health insurance coverage. If you do not already have health insurance, you must buy the student health insurance provided through the university. Coverage is not valid until your account is paid or you are enrolled in a payment plan. Please visit http://www.uaf.edu/chc/ for more information.

PARKING PERMIT

Cost: Single vehicle, $41 for 8 or fewer credits; $78 for 9 or more credits; $143 annual permit

Multivehicle — With any of the permit options, you can register up to four vehicles for an additional $10. You will receive a hang tag that will allow you to park one vehicle on campus at a time. (Campus residents may not purchase the multivehicle option. Employees are not eligible to purchase parking permits at student rates.)

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.

Costs are based on the combined total credit hour enrollment at UA, Community and Technical College, e-Learning & Distance Education, or any class held at a UA location where credit is given through another location.

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 UA’s online parking system at 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 Sighers’ 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 Sighers’ 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.

**STUDENT HEALTH AND COUNSELING CENTER**

**Cost:** $135 per fall or spring semester; $70 summer

**Who pays:** Fall and spring semesters — students enrolled in 9 or more on-campus credits (optional for students taking 6-8 credit hours), students living in university housing, and all students purchasing student health insurance. Summer sessions — students enrolled in 6 or more on-campus credits (optional for students enrolled in fewer than 6 credits if they are enrolled in the upcoming fall semester for 6 or more credits and were eligible for student health center services in the preceding spring semester).

**What’s covered:** Basic medical and counseling services at the UAF Student Health and Counseling Center on the Fairbanks campus.

**Waivers:** Students who meet all the following conditions may waive the health center fee:

1. no courses on the Fairbanks campus or at University Park,
2. not living in university housing and
3. not purchasing the university student health insurance plan.

Pick up a health center fee waiver form from the UAF Bursar’s Office on the Fairbanks campus or call 907-474-7043.

**STUDENT RECREATION CENTER**

**Cost:** $75 per semester

**Who pays:** All Fairbanks-area students (Fairbanks campus or Community and Technical College sites) enrolled in 9 or more credits (correspondence classes do not count towards this total). Students enrolled in 3-8 credits who want access to the Student Recreation Center can pay the access fee to use the facilities. This fee is not available for students enrolled in fewer than 3 credits. Students taking courses outside the Fairbanks area are not required to pay this fee.

**What’s covered:** The SRC fee provides for use of the SRC and its facilities. Anyone under the age of 18 using the SRC and its facilities must be accompanied by a parent or guardian whose minimum age is 21, unless he or she is a full-time student. Call 907-474-5886 for more information.

**STUDENT SUSTAINABILITY**

**Cost:** $20 per semester

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

**What’s covered:** The Student Sustainability fee is a student-initiated fee that funds energy-efficiency programs and renewable energy projects or other sustainability issues. Preference is given to projects that reduce UAF’s nonrenewable energy consumption at the Fairbanks campus and CTC sites. For more information visit http://www.uaf.edu/sustainability/rise/currentproposals/.

**TECHNOLOGY**

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

**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:** $15 per semester

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

**What’s covered:** The transportation fee pays a portion of the costs of operating shuttle buses throughout campus and to various university facilities off campus.

**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

**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 non-credit courses. The minimum network charge per course is $8.
WOOD CENTER STUDENT LIFE

Cost: $35 per semester

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

Other Fees

<table>
<thead>
<tr>
<th>Other Fees</th>
<th>(per use unless otherwise indicated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application for Admission</td>
<td></td>
</tr>
<tr>
<td>Certificate or associate degree</td>
<td>$40</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>$50</td>
</tr>
<tr>
<td>Graduate</td>
<td>$60</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>$2,070-$3,050¹</td>
</tr>
<tr>
<td>Fairbanks campus family housing (per month)</td>
<td>$745-$1,640²</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>2.75 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>$35, $100, $150</td>
</tr>
<tr>
<td>Late Placement Test or Guidance Test</td>
<td>$5</td>
</tr>
<tr>
<td>Meal Plans (per semester)</td>
<td>$295-$2,195</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>$30-$75</td>
</tr>
<tr>
<td>Post Office Box</td>
<td></td>
</tr>
<tr>
<td>Semester</td>
<td>$45</td>
</tr>
<tr>
<td>Summer Only</td>
<td>$30</td>
</tr>
<tr>
<td>Records Duplication</td>
<td>$0.25/page</td>
</tr>
<tr>
<td>Reinstatement Fee</td>
<td>$100</td>
</tr>
<tr>
<td>Returned Check Fee</td>
<td>$30</td>
</tr>
<tr>
<td>Textbooks (approximate)</td>
<td>$250-$1,100/semester</td>
</tr>
<tr>
<td>Transcripts</td>
<td></td>
</tr>
<tr>
<td>Electronic, $12; paper, $15</td>
<td>$12-$15</td>
</tr>
<tr>
<td>Expedited paper</td>
<td>$30</td>
</tr>
<tr>
<td>UAF SOM and CEM Tuition Surcharge</td>
<td>20 percent of tuition</td>
</tr>
</tbody>
</table>

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-$60

Who pays: Applicants to certificate and associate degree programs should include $40 with their admissions application. Applicants to
bachelor’s programs should include $50, and applicants to graduate programs, $60.

**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:** $355 deposit ($40 nonrefundable application fee; $315 refundable damage deposit).

<table>
<thead>
<tr>
<th>Fairbanks Campus Single-Student Housing (per semester)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Double rooms</td>
<td>$2,070</td>
</tr>
<tr>
<td>Single rooms(^1)</td>
<td>$2,535</td>
</tr>
<tr>
<td>Double room/single occupancy(^1)</td>
<td>$3,050</td>
</tr>
<tr>
<td>Cutler Apartment Complex</td>
<td>$2,350-$2,825(^2)</td>
</tr>
<tr>
<td>Sustainable Village single</td>
<td>$2,895</td>
</tr>
</tbody>
</table>

\(^1\) Extremely limited availability  
\(^2\) Includes winter break

#### Fairbanks Campus Family Housing

**Cost:** $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:** 2.75 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.

### E-LEARNING & 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 DEV M105) due to instructor’s recommendation.

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

What's covered: Processing of late payments

LATE PAYMENT FEES
Cost: $100 for first; $150 for second; $35 per month for late payment plan payments

Who pays: All students who have missed the fee payment deadline and have a balance of $300 or more. An additional $150 fee will be added to accounts not paid by the withdrawal deadline.

What's covered: Processing of late payments

LATE PLACEMENT TEST OR GUIDANCE TEST
Cost: $5

Who pays: Students who take a placement or guidance test outside of scheduled testing sessions

What's covered: Test oversight, administration and recording

MEAL PLANS
Cost: $295-$2,195

Who pays: All students living in a residence hall are required to purchase a meal plan, with the exception of graduate students and residents in the Sustainable Village. UAF also offers meal plans to students not living on campus. For more information on meal plan options and plan details please review the Dining Services program terms and conditions. All prices are per semester.

What's covered (per semester): 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 4:30 p.m. until closing. Munch Money is used like cash at all dining locations and most vending machines on campus.

All unused block dinners expire at the end of each semester. Any remaining Munch Money from the fall semester will be added to the spring meal plan but expires at the end of the academic year after May 8, 2017. Unused dinners and Munch Money will not be refunded. See Dining Services (p. 69) page for details of specific meal plans.

Applications to purchase meal plans are available at http://www.uaf.edu/dining/. Forms may be submitted electronically from the website or sent to Dining Services via email at uaf-dining@alaska.edu or P.O. Box 75815, Fairbanks, AK 99775.

Note: The Wood Center food court is closed for campus holidays.

NEW STUDENT ORIENTATION
Cost: $115 for fall semester, covers all programs except special Outdoor Adventures activities; $10 for one-day fall transfer student orientation, and $25 (plus $10 for each additional guest) for two-day fall family orientation. $35 for spring orientation.

Who pays: Any new student may participate in New Student Orientation on the Fairbanks campus. NSO is required for all first-time 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.

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

PAYMENT PLAN
Cost: $30-$75 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.

POST OFFICE BOX
Cost: $45 per box per semester, $30 summer only

Who pays: Students who wish to receive U.S. Postal Service mail on campus may rent a post office box in the full-service post office in Constitution Hall. USPS mail is delivered on campus to post office boxes only, not to street addresses. The fee can be paid at UAOnline or at the Bursar’s Office in Signers’ Hall.

What's covered: Post office box space, postal and mail forwarding services

RECORDS DUPLICATION
Cost: $0.25 per page

Who pays: Anyone who requests copies of their own academic records

What's covered: Copies of records in your academic file in the Office of Admissions and the Registrar (except transcripts from another school). Students need to submit a written request for copies. The Office of Admissions and the Registrar provides document copies as time permits. All copies provided through this service are stamped "unofficial."
**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. 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. The employee must be employed for at least six months to be eligible and must maintain a cumulative GPA of 2.0 for undergraduate courses and 3.0 for graduate courses. 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/.

**Refunds**

**TUITION AND FEES**

Students who withdraw from courses or cancel enrollment must submit a completed official withdrawal form to the Office of Admissions and 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.
   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://uonline.alaska.edu) by following these steps:

- At the "Student Services & Accounting Information" menu select the “Direct Deposit Enrollment” link.
- Select “1st time setup of direct deposit”
- 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 can be found online 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 can be found online 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 Jan. 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. 62) 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 fees</td>
<td>$7,798</td>
<td>$7,798</td>
</tr>
<tr>
<td>Books, supplies</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Room and board2</td>
<td>$12,080</td>
<td>$8,530</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>TOTAL</td>
<td>$26,128</td>
<td>$20,978</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, Student Recreation Center and health center fees. Does not include health insurance, parking, travel or special costs associated with international or exchange students. Add $14,670 for nonresident tuition. Costs are subject to change.

2 Double room and meal plan
How Eligibility Is Determined

Within two to four weeks 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, proof of citizenship, etc.) or an award notice detailing your eligibility for financial aid. This information is also available via UAOnline at http://uaonline.alaska.edu. Students should respond to requests for more information promptly to avoid delays.

The total amount of financial aid awarded will be based on the FAFSA results and the student's cost of attendance.

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 $11,000 scholarship paid over eight semesters at $1,375/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 and the Registrar 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://uaonline.alaska.edu. For more information contact the Office of Admissions and the Registrar 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: up to $4,755, $3,566 and $2,378. To qualify, students must complete the FAFSA as soon as possible. For more information visit http://acpe.alaska.gov/FINANCIAL_AID/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://uaonline.alaska.edu. For more information contact the Office of Admissions and the Registrar 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. 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 most scholarships. Continuing students must complete the scholarship supplement form only. You may apply online at http://uaonline.alaska.edu. 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://uaonline.alaska.edu. The deadline is Feb. 15. For information telephone 907-474-7687, email sdfnd@alaska.edu 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 four-, three- and two-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 rotc@uaf.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 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.
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 $5,815 for the 2016-2017 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 Grants**
  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.

- **AlaskAdvantage 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-$3,000 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 and the Registrar at 800-478-1823 or 907-474-7500, or online at 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. 54).

### 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. 244).

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 $8,500 and graduate students up to $9,500. 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 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, 110 Eielson, 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, Okla., 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 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 usually requires two to three weeks to complete, so applicants should start early.

- **May to July**
  Complete federal loan promissory note and entrance counseling at http://www.studentloans.gov. Processing time is three to four weeks. If sent to UAF in time, loans will be disbursed during fee payment.

- **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 AND DINING

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.

UAF’s residence halls are some of the best in the state, and they are the only residence halls in the nation that boast a 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, single rooms, alcohol-free environments and first-year experience halls. All single-student residential units are pet and smoke free.

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

• cable television service
• optional local telephone service
• wireless and high-speed connections
• laundry facilities
• gender-inclusive housing (pilot program)
• 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 6 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 and the Registrar 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 cable television, 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.

Residence hall and board plan fees are listed on Tuition and Fees (p. 54) page. 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 board plan should be directed to Dining Services at 907-474-6661.

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 be assessed a minimum of 10 percent of the room rate and forfeit their deposit. Dining plans also carry cancellation consequences. Direct questions about meal plans to Dining Services at 907-474-6661.

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 2016

<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. 1-24</td>
<td>100% refund</td>
<td>Yes</td>
<td>100% refund</td>
</tr>
<tr>
<td>Aug. 25-Sept. 9</td>
<td>90% refund</td>
<td>Yes</td>
<td>100% or prorated</td>
</tr>
<tr>
<td>Sept. 10-23</td>
<td>75% refund</td>
<td>Yes</td>
<td>50% refund</td>
</tr>
<tr>
<td>Sept. 24-Oct. 7</td>
<td>50% refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
<tr>
<td>Oct. 8-21</td>
<td>25% refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
<tr>
<td>After Oct. 21</td>
<td>No refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
</tbody>
</table>

SPRING 2017

<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. 14</td>
<td>100% refund</td>
<td>Yes</td>
<td>100% refund</td>
</tr>
<tr>
<td>Jan. 15-27</td>
<td>90% refund</td>
<td>Yes</td>
<td>100% or prorated</td>
</tr>
<tr>
<td>Jan. 28-Feb. 10</td>
<td>75% refund</td>
<td>Yes</td>
<td>50% refund</td>
</tr>
<tr>
<td>Feb. 11-24</td>
<td>50% refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
<tr>
<td>Feb. 25-March 10</td>
<td>25% refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
<tr>
<td>After March 10</td>
<td>No refund</td>
<td>Yes</td>
<td>No refund</td>
</tr>
</tbody>
</table>

Deposits will be carried forward to subsequent academic years for students with applications. Deposits can be forfeited for several reasons. Please refer to the back of the residence hall application for specific details.

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.

EDGE PROGRAM
The Education, Development, Growth and Experience program provides support and resources to help traditional first-time freshmen achieve academic success. The EDGE program is mandatory for all first-time freshmen under 20 years of age who live on campus. EDGE halls have live-in tutors and twice the number of resident advisors as other halls. Alcohol is prohibited in EDGE halls. Participants receive instruction in academic success skills, campus resources and other topics that foster success.

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 and the Sustainable Village. 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 and the Sustainable Village 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.

Family Housing/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 family/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.

APPLICATION PROCESS
Residence Life will mail an application for family 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 family, faculty and staff 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 at 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 family apartment rental rates include all utilities except telephone and Internet in some units.

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.

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 usually 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/chi/.

**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 4:30 p.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 meal plan.

<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>$1,250</td>
<td>$2,195</td>
<td>All</td>
</tr>
<tr>
<td>Block 75</td>
<td>75</td>
<td>$1,450</td>
<td>$2,195</td>
<td>All</td>
</tr>
<tr>
<td>Gold plan</td>
<td>0</td>
<td>$995</td>
<td>$995</td>
<td>Wickersham/Cutler and commuter students only</td>
</tr>
<tr>
<td>Block 30</td>
<td>30</td>
<td>$300</td>
<td>$595</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  
110 Eielson Building  
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 helps 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/advising/ for academic advisor contact information.

The Academic Advising Center, on the Fairbanks campus, helps general studies 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 staff and advisors offer guidance for general studies students (undeclared and exploratory), pre-major, AHEAD students, 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 or pharmacy.

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 is a free program that 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 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, certified tutoring, math skills instruction, academic and STEM mentoring, cultural and social
engagement, laptop and media loan, scholarships, and a supportive environment. Eligible incoming local freshmen are encouraged to apply to Emerging Scholars Academy summer 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/. Many of these resources are free or cost a nominal fee.

- **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 Admissions and 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 Admissions and the Registrar on the first floor of Signers’ Hall, call 907-474-7500, email registrar@uaf.edu or visit http://www.uaf.edu/reg/.

### Alumni Association

The UAF Alumni Association is an network of graduates and former students who support the university and advocate on its behalf. The association offers scholarships and sponsors various campus events and projects. The association’s alumni mentor program helps students with degree program and career planning. Through the association, students 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 non-commissioned 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 $900 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, rotc@uaf.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 www.asuafstudentgov.org (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 Nanook 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 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. The Hulbert Nanook Terrain Park is near the sledding hill. Students with an SRC membership can ski or ride for free. The park maintains about 15 elements, including jumps and rails.

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, and rents equipment, including backpacks, canoes, cross-country skis and much more. Visit the Outdoor Adventures office in Wood 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 coordinator reviews resumes and cover letters and conducts
practice interviews during office visits or through the online resource on the Career Services website. Information about employment, internships and on-campus jobs is available 8 a.m.–5 p.m., Monday–Friday year-round.

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 on the first floor of the Eielson 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, Fairbanks, Juneau, Kodiak, Nome, Palmer, Sitska and Soldotna, and in affiliate offices with the Tanana Chiefs Conference, Eielson Air Force Base and Thorne Bay.

As the state’s gateway to the university system, Extension serves some 90,000 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

The Disability Services program, in 208 Whitaker, provides services to students with documented disabilities on 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. The goal of Disability Services is to ensure equal access to educational opportunities at UAF. Academic 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.

Disability Services operates an assistive technology lab with specialized software. UAF has an accessible shuttle bus service equipped with a wheelchair lift for transportation on campus, and most campus buildings are accessible. Accessible living accommodations are available through Residence Life. There is a swimming pool with a hydraulic lift in the Patty Center.

For more information contact the director of Disability Services at 907-474-5655 or 907-474-1827 (TTY), email uaf-disability-services@alaska.edu or at http://www.uaf.edu/disability/.

Diversity and Equal Opportunity

Staff in the Diversity and Equal Opportunity office lead a focused effort to build inclusive systems and a welcoming environment at UAF. Staff provide conflict resolution and mediation services, ensure equality of employment and educational opportunity, and work to eradicate discriminatory practices.

DEO 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, color, national origin, gender, religion, disability, age (over 40), genetic code, sexual orientation or retaliation, they can lodge a complaint with DEO. Complaints can be filed online at http://www.uaf.edu/seo/ or by visiting the office.

DEO is in the Nordic House at 739 Columbia Circle. For more information call 907-474-7300 or visit http://www.uaf.edu/seo/.
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 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 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, withdrawal deadlines, fees, materials 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.

General Studies

Students pursuing a bachelor’s degree who haven’t declared a major or haven’t decided which major to pursue are admitted as general studies students. General studies students usually take courses required for the university general education. 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. General studies students work with academic advisors in the Academic Advising Center who encourage exploring, selecting and committing to an appropriate major. All general studies 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 Admissions and the Registrar or at http://www.uaf.edu/reg/. 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 oversees academic assistance and actions concerning general studies students. For more information about general studies, 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 generally work with advisors in the Academic Advising Center, Rural Student Services or a community campus, but it is helpful to also contact the department of your intended major. Because not all requirements for immediate admittance to a bachelor’s degree will have been met, pre-major students will work with an academic advisor to determine the best selection of courses to pursue. 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 major status. The vice provost will notify students of their change of status and inform the registrar. Pre-major students do not use the change of major form to move from pre-major to major status but may use the form to change from pre-major status in one program to another program. Academic assistance and actions are processed the same as for general studies students.

Greek Life at UAF

Sigma Phi Epsilon, the first national fraternity in Alaska, was installed at UAF in 1997. The fraternity began nationally in 1901, founded on the principles of virtue, diligence and brotherly love. It is one of the oldest and most respected fraternities in the nation. Through community service, campus leadership and fraternity, Sigma Phi Epsilon gives its members the opportunity to live a balanced life.

Alpha Phi Omega is a national, coed service fraternity that has set the standard for college campus-based volunteerism since 1925. The organization strives to help each individual member develop leadership skills, experience friendship on many levels and provide service to others.

For more information on Sigma Phi Epsilon and Alpha Phi Omega, visit http://www.uaf.edu/live/clubs/ or contact the LIVE Program (Leadership, Involvement, Volunteer Experience) at 907-474-1959.

Honor Societies

These honor societies are active at UAF:

- Chi Epsilon (civil engineering)
- Gamma Theta Upsilon (geography)
- Golden Key International Honour Society (all disciplines)
- National Society of Collegiate Scholars (all disciplines)
- Phi Alpha Theta (history)
- Pi Sigma Alpha (political science)
- Phi Sigma Iota (foreign languages)
- Psi Chi (psychology)
- Tau Beta Pi (engineering)

For more information contact the Honors Program at 907-474-6612 or the LIVE Program at 907-474-1170.

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
Undergraduate students who have demonstrated high academic achievement and are pursuing a baccalaureate degree are encouraged to apply to the Honors Program. Entering freshmen must have a cumulative high school GPA of 3.6 and a composite SAT score of 1820 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 the core curriculum courses, courses developed specifically for the honors program, and standard courses contracted for honors credit by students with individual professors. With approval by the director, students who study abroad may earn up to 12 honors credits for 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 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 and a place for social gatherings.

Program Requirements
To graduate with a distinction from the Honors Program, students must fulfill GPA, capstone project and honors credit requirements.

GPA Requirement
To graduate with a distinction from the Honors Program, in addition to the other program requirements, students must have a cumulative GPA of 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.

Capstone Project Requirement
To graduate with a distinction from the Honors Program, in addition to the other program requirements, students must work with a faculty mentor to complete a capstone project, including a written component and an oral presentation.

Honors Credit Requirement
University Honors Scholar distinction is awarded at commencement to students who complete 27 or more credits of honors course work and/or study abroad and graduate-level courses in addition to the other program requirements. Honors Program Scholar distinction is awarded to students who complete 12 credits of honors course work 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. 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 23-hour study space with a student computer lab.

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 part of the core curriculum 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, the University of Alaska online institutional repository, makes theses, dissertations, articles and other scholarly works by UA students and faculty available to the public.

Rasmuson Library is a federal documents depository and receives about one-third of the titles available for selection from the U.S. Government Printing Office. Special collections in the library include the internationally recognized Alaska and Polar Regions Collections & Archives, which houses historical books, periodicals, documents, manuscripts, photographs, film, oral histories 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
Northern Military Programs

Northern Military Programs 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, North Pole High School 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, 2623 Wabas Ave., Room 105, 907-377-1396; Fort Wainwright, 4391 Neely St., Room 137, 907-356-3826; or Delta Career Advancement Center, 1696 N. Clearwater Ave., 907-895-4605.

PolarExpress Identification Card

The PolarExpress card is the official UAF photo identification card used by students, staff and faculty for access to UAF facilities and to make purchases.

Your PolarExpress card lets you check out library books, vote in student elections, and access health and other student services. The card’s magnetic stripe holds a unique key that provides secure access to residence halls, laboratoried and the Student Recreation Center. You can deposit money into your Bear Bucks account, which can be used at all Dining Services locations, vending machines, photocopiers, the Wood Center counter and the Bookstore. See the complete list at http://www.uafbearbucks.com.

For PolarExpress card information, call 907-474-7384 or visit http://www.uaf.edu/bursar/polarexpress/.

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/eaccountsuaf/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 receives emergency calls from communities along the Parks Highway from Fairbanks to Cantwell. 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 EMS 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 hands-on, interactive program develops highly skilled individuals able to perform all the duties of professional career firefighters. The fire department provides exceptional employment and career opportunities for students interested in a career in emergency services.

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/.

Post Office

Students who want to get mail on campus can rent post office boxes in 107 Constitution Hall. Rent is $45 per semester and is billed automatically once a box is open until it is closed. Small packages may be mailed using the automated kiosk at the same location.

Renting, updating address information and closing boxes is done through UAOonline (http://uaonline.alaska.edu).

Post office 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 post office boxes; UPS and FedEx will deliver to the Residence Life office. There is a $15 lost key charge.

For more information visit http://www.uaf.edu/fs/services/postoffice/. Questions? Email campus.postoffice@uaf.edu, call 907-474-7215 or write UAF Campus Post Office, P.O. Box 750100, Fairbanks, AK 99775-0100.

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 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 for appointments. Urgent care appointments are available when necessary.

The counseling staff offers individual, group and crisis intervention counseling. Counselors, all with graduate-level training, assist with a variety of personal and interpersonal issues. 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.

Professional staff provide information, health education and referral for individuals and groups seeking to maintain or improve physical and mental health.

The student health insurance program 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-shcc@alaska.edu or visit http://www.uaf.edu/chc/.

Student Services

University and Student Advancement provides student-centered programs and services to help students achieve their personal, academic and career goals. In collaboration with the academic deans, USA leads the university in recruiting a diverse student body. With the creative use of ongoing assessment, USA supports and develops programs and communities that contribute to the retention, success and leadership development of students.

University and Student Advancement departments include the Office of Admissions and the Registrar; Associated Students of UAF; the Athletics Department; the Bookstore; Career Services; the Office of the Dean of Students; the Department of Recreation, Adventure and Wellness; the Office of Development and Alumni Relations; Dining Services; Disability Services; Financial Aid; International Programs and Initiatives; KUAC; New Student Orientation; Residence Life; Student Health and Counseling Center; Student Leadership Development; Sustainability; University Relations; Veterans Resource Center; and Wood Center.

The Office of the Vice Chancellor for University and Student Advancement is a resource and referral center where any student who does not 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/usas/ for a complete list of all departments. For more information contact University and Student Advancement at uaf-vcusa@alaska.edu or 907-474-2600.

The Dean of Students office 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/deanofstudents/, uaf-deanofstudents@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 907-474-7192 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. 54) 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 907-474-7192 or uaf-studyaway@alaska.edu, or visit http://studyabroad.uaf.edu.
Summer Sessions and Lifelong Learning

Summer Sessions and 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, SSSL 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 Arts Academy. Summer Sessions also houses the Osher Lifelong Learning Institute, which offers opportunities for continued learning for adults 50 and older.

Each summer SSSL hosts free lectures, movies, concerts and recreational activities for students and community members. In January, a community lecture is associated with WINTERmester.

SSSL 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 and 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, in the Bunnell Building on the Fairbanks campus, is the computing help desk and a gateway to many of the services OIT offers UAF students, faculty and staff. The OIT service desk also has two walk-up locations at 231 Bunnell and 102 Butrovich.

Contact the OIT service desk at 907-450-8300, toll free at 800-478-8226, email helpdesk@alaska.edu or visit 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.

OIT operates and maintains two student computer labs in 404 Rasmuson and 110 Moore-Bartlett-Skarland. The newest addition in computing spaces is the Nook, in Bunnell 319. The Nook is a collaborative commons space that offers a variety of seating options with accessible 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 75 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 to provide automated lecture capture/recording.

Additional OIT Services in Bunnell

The Student Computer Repair Center provides free help and advice for students having issues with their personal computers.

OIT 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 also 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 Grueening 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 scholarship. 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 from a single credit of a first-year seminar to independent scholarly investigations, a B.F.A. exhibit or performance, or a senior thesis.

Eligibility

Undergraduate students from all disciplines are eligible to engage in research or creative scholarly 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 Showcase 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 knowledge.

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 Services, 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, a television lounge, 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 UAF Leadership, Involvement and Volunteer Experience program provides opportunities for students to learn about and practice leadership skills and become involved on campus and in the community. Through the LIVE 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 the LIVE Program, visit the Wood Center or online at http://www.uaf.edu/live/.

The Nanook Diversity and Action Center (formerly known as the Women’s Center) is a student-run programming board that 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 and sexual orientation.

NDAC goals include:

- Increasing student awareness and appreciation for other identities/cultures.
- Providing guidance and support to student organizations that want to program cultural events, create diversity initiatives, or provide educational opportunities that encourage cultural pluralism.
- Providing programs that challenge the use of stereotypes.

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 LIVE 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 907-474-7037 or visit http://www.uaf.edu/woodcenter/.
OCCUPATIONAL ENDORSEMENTS

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. 80) 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 Admissions and 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. 80)

Occupational Endorsement Programs

Administrative Assistant

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/aaa/ (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.

General University Requirements
Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**

Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

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

Total Credits 16

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**Bookkeeping Technician**

Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/abus/ (http://www.ctc.uaf.edu/programs/abus)

**Occupational Endorsement**

The bookkeeping technician occupational endorsement provides training to 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.

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.

**General University Requirements**

Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**

Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</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 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>ABUS F203</td>
<td>Accounting Capstone</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F220</td>
<td>Microcomputer Accounting: QuickBooks</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

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**Carpentry, Basic**

College of Rural Community Development
907-474-7143
www.uaf.edu/rural/ (http://www.uaf.edu/rural)

**Occupational Endorsement**

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: 14.5 credits

Students must earn a C- grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**

Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</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>
<tr>
<td>CTT F106</td>
<td>Construction Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>CTT F110</td>
<td>Residential Carpentry I</td>
<td>8.5</td>
</tr>
<tr>
<td>or CTT F111</td>
<td>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>

Total Credits 14.5

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**Facility Maintenance**

College of Rural and Community Development
907-474-7143
www.uaf.edu/rural/ (http://www.uaf.edu/rural)

**Occupational Endorsement**

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: 12 credits

Students must earn a C- grade or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**
Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

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

Total Credits 12

**Health, Allied**

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 state of Alaska 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.

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 www.ctc.uaf.edu/health/(http://www.ctc.uaf.edu/health).

**Medical Billing, Medical Coding and Medical Office Reception**
Complete the following admissions requirement:

- Be at least 16 years old by the first day of the semester in which you are admitted.

**Nurse Aide**
Complete the following admissions requirement:

- Be at least 18 years old by the first day of the semester in which you are admitted.

**Medical Billing – Occupational Endorsement Program**
Minimum Requirements for Endorsement: 12 credits
Students must earn a C- or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**
Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</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 F236</td>
<td>Outpatient Health Care Reimbursement</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F237</td>
<td>Inpatient Health Care Reimbursement</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**
12

**Medical Coding – Occupational Endorsement Program**
Minimum Requirements for Endorsement: 13 credits
Students must earn a C- or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**
Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</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 F235</td>
<td>Medical Coding</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits**
13

1 Must complete HLTH F235 with a B grade or better.

**Medical Office Reception – Occupational Endorsement Program**
Minimum Requirements for Endorsement: 12 credits
Students must earn a C- or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**
Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

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

**Total Credits**
12

**Nurse Aide – Occupational Endorsement Program**
Minimum Requirements for Endorsement: 9 credits
Students must earn a C- or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 80)

**Occupational Endorsement Requirements**
Complete the occupational endorsement requirements. (p. 80)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</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>9</td>
</tr>
</tbody>
</table>

**Total Credits**
9

**Homeland Security**
School of Management
907-474-7461

**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.

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: 12 credits

General University Requirements
Complete the general university requirements. (p. 80)

Occupational Endorsement Requirements
Complete the occupational endorsement requirements. (p. 80)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>

Select at least 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F223</td>
<td>Terrorism: A Global Threat</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F225</td>
<td>Intelligence Analysis and Security Management</td>
<td></td>
</tr>
<tr>
<td>HSEM F227</td>
<td>Transportation and Border Security</td>
<td></td>
</tr>
<tr>
<td>HSEM F231</td>
<td>The Threat of Weapons of Mass Destruction</td>
<td></td>
</tr>
<tr>
<td>HSEM F233</td>
<td>Critical Infrastructure Protection</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 12

Law Enforcement Academy

College of Rural and Community Development
907-474-7143
www.ctc.uaf.edu/programs/lawacad/ (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.

Minimum Requirements for Certification: 16 credits

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

Total Credits: 16

LAW ENFORCEMENT CERTIFICATION BY THE ALASKA POLICE STANDARDS COUNCIL

Mining Mill Operations

College of Rural and Community Development
Community and Technical College
907-479-2436
www.ine.uaf.edu/mirl/taaccct/mining-mill-op/ (http://ine.uaf.edu/mirl/taaccct/mining-mill-op)

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

General University Requirements
Complete the general university requirements. (p. 80)

Occupational Endorsement Requirements
Complete the occupational endorsement requirements. (p. 80)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>

Total Credits: 17

Paramedic Academy

Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/paramedic/ (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 requirement:

- 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 907-455-2895 or jyurong@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. Completion of EMS F170 (6 credits) is a prerequisite for the paramedic academy. Completion of HLTH F114 (4 credits) is recommended. 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.

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

### General University Requirements

Complete the general university requirements. (p. 80)

### Occupational Endorsement Requirements

Complete the occupational endorsement requirements. (p. 80)

### Program Requirements

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

Total Credits: 16

**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
www.uaf.edu/rhs/ (http://www.uaf.edu/rhs)

This program provides education and training to conduct water quality monitoring and assessment by developing and following a Quality Assurance Project Plan (QAPP). Course work focuses on issues related to rural Alaska communities and provides basic academic preparation for entry-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.

General University Requirements
Complete the general university requirements. (p. 80)

Occupational Endorsement Requirements
Complete the occupational endorsement requirements. (p. 80)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F183</td>
<td>Professional Skills for Job Hunt</td>
<td>1-3</td>
</tr>
<tr>
<td>CIOS F150</td>
<td>Computer Business Applications</td>
<td>1-3</td>
</tr>
<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 F111</td>
<td>Introduction to Water Quality II: Monitoring and Assessment</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F112</td>
<td>Introduction to Water Quality III: Data Quality Assurance</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F160</td>
<td>Internship in Environmental Studies</td>
<td>1-2</td>
</tr>
</tbody>
</table>

Total Credits: 9-14

Rural Utilities Business Management
College of Rural and Community Development
907-474-7143
www.uaf.edu/rural/ (http://www.uaf.edu/rural)

Occupational Endorsement

The occupational endorsement in rural utility business management provides education and training in theory and skills for the sustained operation of rural water and wastewater utilities. The program is open to all individuals who wish to apply, with the recommendation that they have a high school diploma or GED. It is designed to serve the needs of rural Alaskans who are employed by a rural sanitation utility or nominated by any of the following: a rural sanitation utility, State of Alaska RUBM program manager or Alaska Native tribal health corporation. Applicants must be at least 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- or better in each course.

General University Requirements
Complete the general university requirements. (p. 80)

Occupational Endorsement Requirements
Complete the occupational endorsement requirements. (p. 80)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM F130</td>
<td>Introduction to Utility Management</td>
<td>2</td>
</tr>
<tr>
<td>TM F131</td>
<td>Organizational Management for Utilities</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 12

Rural Waste Management and Spill Response
College of Rural and Community Development
Bristol Bay Campus
907-842-5109
www.uaf.edu/rural/ (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.

OCCUPATIONAL ENDORSEMENT PROGRAM

Minimum Requirements for Occupational Endorsement: 10 credits

General University Requirements
Complete the general university requirements. (p. 80)

Occupational Endorsement Requirements
Complete the occupational endorsement requirements. (p. 80)

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F183</td>
<td>Professional Skills for Job Hunt</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F110</td>
<td>Introduction to Water Quality I: Measurement</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F115</td>
<td>Rural Solid and Hazardous Waste Management</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F116</td>
<td>Rural Alaska Landfill Operator</td>
<td>1</td>
</tr>
<tr>
<td>ENVI F117</td>
<td>Community Spill Response</td>
<td>1</td>
</tr>
<tr>
<td>FIRE F110</td>
<td>Introduction to Hazardous Waste Operations and Emergency Response</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 2 credits of the following:

- CIOS F135 Microcomputer Spreadsheets
- CTT F130 Introduction to Facilities Maintenance
- ENVI F130 Introduction to the National Environmental Policy Act
- ENVI F160 Internship in Environmental Studies
Sustainable Energy
College of Rural and Community Development
907-474-7143
www.uaf.edu/rural/ (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.

Energy Science
ENVI F101 Introduction to Environmental Science 3
PHYS F102X Energy and Society 4

Photovoltaic
CTT F100 Construction Technology Core 3
CTT F160 Photovoltaic Systems I 5
CTT F161 Photovoltaic Systems II 5

Biomass
CTT F100 Construction Technology Core 3
CTT F250 Current Topics in Construction Trades 2
ENVI F120 Home Energy Basics 1

Wind
CTT F100 Construction Technology Core 3
CTT F250 Current Topics in Construction Trades 1-3
ENVI F120 Home Energy Basics 1

Energy-Efficient Construction
CTT F100 Construction Technology Core 3
CT S201 Cold Climate Construction 1 3

Other
Other areas of study related to sustainable energy 1

1 CT S201 is offered by the University of Alaska Southeast.

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 PROGRAM
Minimum Requirements for Occupational Endorsement: 12 credits

Students must earn a C- or better in each course.

General University Requirements
Complete the general university requirements. (p. 80)

Occupational Endorsement Requirements
Complete the occupational endorsement requirements. (p. 80)

Program Requirements
ENVI F220 Introduction to Sustainable Energy 3
Select one from the following: 3
CTT F106 Construction Mathematics
DEVM F105 Intermediate Algebra
TTCH F131 Mathematics for the Trades

Electives
Select 6 credits from the following: 6
CT S201 Cold Climate Construction 1
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
ENVI F121 Building Ventilation and Energy
ENVI F122 Energy Efficient Building Design and Simulation
PHYS F102X Energy and Society
RE A110 Introduction to Solar Photovoltaic Systems 2
RE A130 Introduction to Small Wind Systems 2
RE A150 Basics of Ground-Source Heat Pump Systems 2
or other, advisor-approved electives

Total Credits 12

1 CT S201 is offered by the University of Alaska Southeast.
2 RE A110, RE A130 and RE A150 are offered by the University of Alaska Anchorage.

Tribal Justice
College of Rural and Community Development
907-474-7143
www.uaf.edu/rural/ (http://www.uaf.edu/rural)

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.

**OCCUPATIONAL ENDORSEMENT PROGRAM**

Minimum Requirements for Occupational Endorsement: 9 credits

<table>
<thead>
<tr>
<th>General University Requirements</th>
<th>Complete the general university requirements. (p. 80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Endorsement Requirements</td>
<td>Complete the occupational endorsement requirements. (p. 80)</td>
</tr>
</tbody>
</table>

**Program Requirements**

- **TM F110** Tribal Court Development for Alaska Tribes 1
- **TM F111** Children's Topics in Tribal Justice 1
- **TM F112** Federal Indian Law for Alaska Tribes 1
- **TM F113** Tribal Code Development 1
- **TM F114** Tribal Justice Responses to Community and Domestic Violence 1
- **TM F115** Tribal Court Administration 1
- **TM F116** Juvenile Justice in Tribal Court 1
- **TM F117** Tribal Court Enforcement of Decisions 1
- **TM F118** Tribal Community and Restorative Justice 1

Total Credits 9

**Wildland Fire Science**

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/emergency/ (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.

**OCCUPATIONAL ENDORSEMENT PROGRAM**

Minimum Requirements for Occupational Endorsement: 11 credits

<table>
<thead>
<tr>
<th>General University Requirements</th>
<th>Complete the general university requirements. (p. 80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Endorsement Requirements</td>
<td>Complete the occupational endorsement requirements. (p. 80)</td>
</tr>
</tbody>
</table>

**Program Requirements**

- **FIRE F151** Wildland Firefighter I 3
- **FIRE F152** Wildland Firefighter II 3
- **FIRE F153** Wildland Firefighter III 2
- **FIRE F157** Wildland Air Operations 3

Total Credits 11

**Welding, Entry-level**

Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/weld/ (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.

**OCCUPATIONAL ENDORSEMENT PROGRAM**

Minimum Requirements for Occupational Endorsement: 24 credits

<table>
<thead>
<tr>
<th>General University Requirements</th>
<th>Complete the general university requirements. (p. 80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Endorsement Requirements</td>
<td>Complete the occupational endorsement requirements. (p. 80)</td>
</tr>
</tbody>
</table>

**Program Requirements**

- **WMT F130** Shielded Metal Arc Welding 3
- **WMT F140** Metal Fabrication 3
- **WMT F160** Gas Metal Arc Welding 3
- **WMT F290** Welding Proficiency Maintenance 3
- **WMT F150** Gas Tungsten Arc Welding 3

Total Credits 24
CERTIFICATES & ASSOCIATE DEGREES

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. 99) 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 Requirements</th>
<th>Associate Degree Requirements</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>
<tr>
<td>Second degree requirements</td>
<td>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</td>
</tr>
</tbody>
</table>

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. 136).)

• Changing Your Major

Undergraduate students may change majors by completing a change of major form available from the Office of Admissions and the Registrar or at 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 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. The undergraduate petition form is available at www.uaf.edu/reg/forms/. Forms need to be returned to the Office of Admissions and the Registrar with required approval signatures. The Office of Admissions and the Registrar will post the petition information on DegreeWorks and notify you once a decision on your petition has been received. Academic petitions fall into three categories, and each involves different processes:

• General Education Requirement Petitions

If your petition deals with baccalaureate general education 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 Admissions and the Registrar. It will then be
forwarded to the chair of the Faculty Senate Core 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 Admissions and 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 Admissions and the Registrar. It will then be forwarded to the provost for consideration.

**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 both certificates and associate degrees is 15 resident credits.

**GRADUATION**

- **Responsibility**
  You are responsible for meeting all requirements for graduation. You are encouraged to work with your advisor and 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 nonrefundable fee must be filed with the Office of Admissions and the Registrar. We encourage you 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 the 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 following summer sessions, in February at the end of fall semester and in June at the end of spring semester. 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 Office of Admissions and the Registrar. 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/academic bankruptcy. 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 24 semester hours for an associate 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 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.

See a list of all Certificate and Associate Degree programs here. (p. 99)

### 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. 99)

**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.

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**

**Communication**

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
</tr>
<tr>
<td>ABUS F170</td>
<td>Business English</td>
</tr>
<tr>
<td>ABUS F271</td>
<td>Business Communications</td>
</tr>
<tr>
<td>ENGL F211X</td>
<td>Academic Writing about Literature</td>
</tr>
<tr>
<td>ENGL F212</td>
<td>Business, Grant and Report Writing</td>
</tr>
<tr>
<td>ENGL F213X</td>
<td>Academic Writing about the Social and Natural Sciences</td>
</tr>
<tr>
<td>COMM F121X</td>
<td>Introduction to Interpersonal Communication</td>
</tr>
<tr>
<td>COMM F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
</tr>
<tr>
<td>COMM F141X</td>
<td>Fundamentals of Oral Communication: Public Context (or successful completion of competency test)</td>
</tr>
<tr>
<td>DEVS F104</td>
<td>University Communications</td>
</tr>
<tr>
<td>DEVS F105</td>
<td>Academic Reading for College</td>
</tr>
</tbody>
</table>

Other program-approved discipline-based communication course or discipline-based courses with embedded communication content.

**Computation**

Select one from the following:

Any course at the F100-level or above in mathematical sciences (computer science, math or statistics).

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F155</td>
<td>Business Math</td>
</tr>
<tr>
<td>DEVMT 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>
</tbody>
</table>
### Summary of Certificate and Associate Degree Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTCH F131</td>
<td>Mathematics for the Trades</td>
</tr>
<tr>
<td></td>
<td>Other program-approved discipline-based computation course or discipline-based courses with embedded computation content.</td>
</tr>
<tr>
<td><strong>Human Relations</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
</tr>
<tr>
<td>ANTH/SOC F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<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>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>
<tr>
<td></td>
<td>Other program-approved discipline-based human relations or discipline-based courses with embedded human relations content.</td>
</tr>
<tr>
<td><strong>Major Specialty</strong></td>
<td></td>
</tr>
<tr>
<td>At least 21 hours of major specialty courses</td>
<td>21</td>
</tr>
<tr>
<td><strong>Electives to Total</strong></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

1. ENGL F212 does not fulfill the communication requirement for the bachelor’s degree.

### 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 core, with the following exceptions:

1. The upper-division writing and oral-intensive courses are not required.
2. In place of the upper-division ethics course a humanities or social science elective may be substituted.

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:

- General education requirement credits: 38-44
- General electives: 16-22

### REQUIREMENTS

Minimum Requirements for Degree: 60 credits

**Communication**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
</tr>
<tr>
<td>ENGL F211X</td>
<td>Academic Writing about Literature</td>
</tr>
<tr>
<td>or ENGL F213X</td>
<td>Academic Writing about the Social and Natural Sciences</td>
</tr>
<tr>
<td>COMM F121X</td>
<td>Introduction to Interpersonal Communication</td>
</tr>
<tr>
<td>or COMM F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
</tr>
<tr>
<td>or COMM F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
</tr>
</tbody>
</table>

**Library and Information Research**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS F101X</td>
<td>Library Information and Research</td>
</tr>
<tr>
<td></td>
<td>Successful completion of library skills competency test</td>
</tr>
</tbody>
</table>

**Arts**

Select one from 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/NORS 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/JRN F217X</td>
<td>Introduction to the Study of Film</td>
</tr>
<tr>
<td>FLPA/JRN F105X</td>
<td>History of the Cinema</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>Exploration in Music</td>
</tr>
</tbody>
</table>

**Humanities**

Select one from the following:

<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>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>ASLG F101X</td>
<td>American Sign Language I</td>
</tr>
<tr>
<td>ASLG F202X</td>
<td>American Sign Language II</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>ESK F101X</td>
<td>Elementary Central Yup’ik</td>
</tr>
<tr>
<td>ESK F102X</td>
<td>Elementary Central Yup’ik</td>
</tr>
<tr>
<td>ESK F111X</td>
<td>Elementary Inupiaq</td>
</tr>
<tr>
<td>ESK F112X</td>
<td>Elementary Inupiaq</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>JPN F101X</td>
<td>Elementary Japanese I</td>
</tr>
<tr>
<td>JPN F102X</td>
<td>Elementary Japanese II</td>
</tr>
<tr>
<td>JRN F101X</td>
<td>Media and Culture</td>
</tr>
<tr>
<td>JRN F102X</td>
<td>Introduction to Broadcasting</td>
</tr>
<tr>
<td>LAT F101X</td>
<td>Beginning Latin I</td>
</tr>
<tr>
<td>LAT F101X</td>
<td>Beginning Latin I</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>
<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>
</tbody>
</table>

**Social Sciences**

Select 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 F242X</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>ANTH/SOC F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>ANTH F101X</td>
<td>Introduction to Anthropology</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>COMM F180X</td>
<td>Introduction to Human Communication</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>JUST F110X</td>
<td>Introduction to Justice</td>
</tr>
<tr>
<td>PS F100X</td>
<td>Political Economy</td>
</tr>
<tr>
<td>PS F201X</td>
<td>Comparative 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>SWK F103X</td>
<td>Introduction to Social Work</td>
</tr>
<tr>
<td>SOC F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems</td>
</tr>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women's and Gender Studies</td>
</tr>
<tr>
<td></td>
<td><strong>Ethics</strong></td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select one from the following:</td>
</tr>
<tr>
<td>BA F323X</td>
<td>Business Ethics</td>
</tr>
<tr>
<td>COMM F300X</td>
<td>Communicating Ethics</td>
</tr>
<tr>
<td>JUST F300X</td>
<td>Ethics and Justice</td>
</tr>
<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions</td>
</tr>
<tr>
<td>PHIL F322X</td>
<td>Ethics</td>
</tr>
<tr>
<td>PS F300X</td>
<td>Ethics and Society</td>
</tr>
<tr>
<td></td>
<td>Or one additional social science elective (3 credits)</td>
</tr>
<tr>
<td></td>
<td><strong>Mathematics</strong></td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select one from the following:</td>
</tr>
<tr>
<td>MATH F113X</td>
<td>Concepts and Contemporary Applications of Mathematics</td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Precalculus for Business and Economics 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>Calculus Essentials with Applications ⁴</td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I ⁴</td>
</tr>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
</tr>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
</tr>
<tr>
<td></td>
<td><strong>Natural Sciences</strong></td>
</tr>
<tr>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Select two from the following:</td>
</tr>
<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 F115X</td>
<td>Fundamentals of Biology I</td>
</tr>
<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
</tr>
</tbody>
</table>
BIOL F120X Introduction to Human Nutrition
BIOL F213X Human Anatomy and Physiology I
BIOL F214X Human Anatomy and Physiology II
CHEM F100X Chemistry in Complex Systems
CHEM F103X Basic General Chemistry
CHEM F104X Survey of Organic Chemistry and Biochemistry
CHEM F105X General Chemistry I
CHEM F106X General Chemistry II
CHEM F111X Introduction to Environmental Chemistry of the Arctic
GEOG F111X Earth and Environment: Elements of Physical Geography
GEOS F100X Introduction to Earth Science
GEOS F101X The Dynamic Earth
GEOS F106X Life in the Age of Dinosaurs
GEOS F112X The History of Earth and Life
GEOS F120X Glaciers, Earthquakes and Volcanoes: Past, Present and Future
MSL F111X The Oceans
PHYS F102X Energy and Society
PHYS F103X College Physics I
PHYS F104X College Physics II
PHYS F115X Physical Sciences
PHYS F175X Introduction to Astronomy
PHYS F211X General Physics I
PHYS F212X General Physics II
PHYS F213X Elementary Modern Physics

1 Note: Recommended for students who will earn a B.A. or B.S. degree. An additional social science elective may be substituted for the A.A. degree.
2 You may earn credit for MATH F122X or MATH F151X, but not both.
3 Or any math course having one of these as a prerequisite
4 You may earn credit for MATH F230X or MATH F251X, but not both.

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. 99) 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

Communication
9

Complete the following:

ENGL F111X Introduction to Academic Writing

ABUS F271 Business Communications
    or ENGL F211X Academic Writing about Literature
    or ENGL F212 Business, Grant and Report Writing
    or ENGL F213X Academic Writing about the Social and Natural Sciences

COMM F121X Introduction to Interpersonal Communication
    or COMM F131X Fundamentals of Oral Communication: Group Context
    or COMM F141X Fundamentals of Oral Communication: Public Context

Computation
3
Select one from the following:

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

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH/SOC F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<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>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>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

1 ENGL F212 does not fulfill the second half of the written communication requirement for the bachelor's degree.

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

Communication

Complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
</tr>
<tr>
<td>ENGL F211X</td>
<td>Academic Writing about Literature</td>
</tr>
<tr>
<td>or ENGL F213X</td>
<td>Academic Writing about the Social and Natural Sciences</td>
</tr>
<tr>
<td>COMM F121X</td>
<td>Introduction to Interpersonal Communication</td>
</tr>
<tr>
<td>or COMM F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
</tr>
<tr>
<td>or COMM F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
</tr>
</tbody>
</table>

Library and Information Research

Complete one of the following prior to junior standing:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS F101X</td>
<td>Library Information and Research</td>
</tr>
</tbody>
</table>

Or successful completion of library skills competency exam (0)

Arts

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</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/NORS F223X</td>
<td>Alaska Native Music</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------</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/JRN F217X</td>
<td>Introduction to the Study of Film</td>
</tr>
<tr>
<td>FLPA/JRN F105X</td>
<td>History of the Cinema</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>Exploration in Music</td>
</tr>
</tbody>
</table>

**Humanities**

Select one from the following:

<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>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>ASLG F101X</td>
<td>American Sign Language I</td>
</tr>
<tr>
<td>ASLG F202X</td>
<td>American Sign Language II</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>ESK F101X</td>
<td>Elementary Central Yup’ik</td>
</tr>
<tr>
<td>ESK F102X</td>
<td>Elementary Central Yup’ik</td>
</tr>
<tr>
<td>ESK F111X</td>
<td>Elementary Inupiaq</td>
</tr>
<tr>
<td>ESK F112X</td>
<td>Elementary Inupiaq</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>JPN F101X</td>
<td>Elementary Japanese I</td>
</tr>
<tr>
<td>JPN F102X</td>
<td>Elementary Japanese II</td>
</tr>
<tr>
<td>JRN F101X</td>
<td>Media and Culture</td>
</tr>
<tr>
<td>JRN F102X</td>
<td>Introduction to Broadcasting</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>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>
<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>
</tbody>
</table>

**Social Sciences**

Select 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 F242X</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>ANTH/SOC 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>
</tbody>
</table>
### Summary of Certificate and Associate Degree Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>COMM F180X</td>
<td>Introduction to Human Communication</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>or PS 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>JUST F110X</td>
<td>Introduction to Justice</td>
</tr>
<tr>
<td>PS F100X</td>
<td>Political Economy</td>
</tr>
<tr>
<td>PS F201X</td>
<td>Comparative 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>SWK F103X</td>
<td>Introduction to Social Work</td>
</tr>
<tr>
<td>SOC F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems</td>
</tr>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women’s and Gender Studies</td>
</tr>
</tbody>
</table>

#### Additional Arts/Humanities/Social Science

- Select one additional course from the arts, humanities or social science courses listed above.

#### Mathematics

- Select one from the following:
  - MATH F113X Concepts and Contemporary Applications of Mathematics
  - MATH F122X Precalculus for Business and Economics
  - MATH F151X College Algebra for Calculus
  - MATH F152X Trigonometry
  - MATH F156X Precalculus
  - MATH F230X Calculus Essentials with Applications
  - MATH F251X Calculus I
  - MATH F252X Calculus II
  - MATH F253X Calculus III
  - STAT F200X Elementary Probability and Statistics

#### Natural Sciences

- Select four from the following:
  - ATM F101X Weather and Climate of Alaska
  - BIOL F100X Human Biology
  - BIOL F103X Biology and Society
  - BIOL F104X Natural History of Alaska
  - BIOL F115X Fundamentals of Biology I
  - BIOL F116X Fundamentals of Biology II
  - BIOL F120X Introduction to Human Nutrition
  - BIOL F213X Human Anatomy and Physiology I
  - BIOL F214X Human Anatomy and Physiology II
  - CHEM F100X Chemistry in Complex Systems
  - CHEM F103X Basic General Chemistry
  - CHEM F104X Survey of Organic Chemistry and Biochemistry
  - CHEM F105X General Chemistry I
  - CHEM F106X General Chemistry II

- Additional Courses: [1, 2, 3]
Certificate and Associate Degree Programs

Accounting Technician

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800

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

Minimum Requirements for Certificate: 30 credits

General University Requirements

Complete the general university requirements. (p. 89)

Certificate Requirements

Communication

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F170</td>
<td>Business English</td>
</tr>
<tr>
<td>ABUS F271</td>
<td>Business Communications</td>
</tr>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
</tr>
<tr>
<td>ENGL F212</td>
<td>Business, Grant and Report Writing</td>
</tr>
</tbody>
</table>

Computation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F155</td>
<td>Business Math (or MATH at the 100 level or above)</td>
</tr>
</tbody>
</table>

Human Relations

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F154</td>
<td>Human Relations (or other UAF certificate-approved human relations course)</td>
</tr>
</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</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>or ABUS F235</td>
<td>Fund Accounting for Nonprofits</td>
</tr>
<tr>
<td>ABUS F203</td>
<td>Accounting Capstone</td>
</tr>
</tbody>
</table>
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.

Minor, Accounting, Applied

Minimum Requirements for Minor: 18 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.
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. 101)

A.A.S., Apprenticeship Technologies

Minimum Requirements for Degree: 60 credits

**General University Requirements**
Complete the general university requirements. (p. 89)

**A.A.S. Degree Requirements**
Complete the A.A.S. degree requirements. (p. 95)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
<td>3</td>
</tr>
<tr>
<td>or COMM F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F212</td>
<td>Business, Grant and Report Writing</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>DEVM F105</td>
<td>Intermediate Algebra</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
<td></td>
</tr>
<tr>
<td>Any MATH course at the 100 level or higher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
<td></td>
</tr>
<tr>
<td>ANTH F100X</td>
<td>Individual, Society and Culture</td>
<td></td>
</tr>
<tr>
<td>SOC F100X</td>
<td>Individual, Society and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Safety, computer, business, technical or other advisor-approved courses linked to an identified education or career pathway

Approved apprenticeship program transfer of credit maximum 38

Electives to complete 60 credits as needed

Total Credits 59

**Associate of Arts**

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2932
www.ctc.uaf.edu/programs/Automotive/ (http://www.ctc.uaf.edu/programs/Automotive)

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.

**Certificate**

- Automotive Technology (p. 102)

**Certificate, Automotive Technology**

Minimum Requirements for Certificate: 34 credits

Students must earn a C grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 89)

**Certificate Requirements**

Complete the certificate requirements. (p. 91)  

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO F102</td>
<td>Introduction to Automotive Technology</td>
<td>3</td>
</tr>
<tr>
<td>AUTO F110</td>
<td>Basic Electrical Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUTO F122</td>
<td>Engine Theory and Diagnosis</td>
<td>3</td>
</tr>
<tr>
<td>AUTO F131</td>
<td>Automotive Electrical II</td>
<td>3</td>
</tr>
<tr>
<td>AUTO F150</td>
<td>Brake Systems</td>
<td>4</td>
</tr>
<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>
</tr>
<tr>
<td>AUTO F202</td>
<td>Auto Fuel and Emissions Systems</td>
<td>4</td>
</tr>
<tr>
<td>AUTO F222</td>
<td>Automotive Engine Performance</td>
<td>3</td>
</tr>
<tr>
<td>AUTO F227</td>
<td>Automotive Electrical III</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 34

1 See the certificate requirements (p. 91). As part of the certificate requirements, the communication, computation and human relations content are embedded in the major required courses for this program.

**Aviation Maintenance**

Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/amt/ (http://www.ctc.uaf.edu/programs/amt)

**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 are qualified 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, and 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 beginning of September of each year. Applicants may start at other times if they meet experience and educational qualifications that meet departmental approval.

**Degree**

- A.A.S., Aviation Maintenance (p. 102)

**Certificates**

- Airframe and Powerplant (p. 103)
- Airframe (p. 102)
- Powerplant (p. 103)

**A.A.S., Aviation Maintenance**

Minimum Requirements for Degree: 64 credits

Students must earn a C grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 89)

**A.A.S. Degree Requirements**

Complete the A.A.S. degree requirements. (p. 95)

**Airframe and Powerplant Certificate Requirements**

Complete the Airframe and Powerplant certificate requirements. (p. 103) 49

**Total Credits** 49

**Certificate, Airframe**

Minimum Requirements for Certificate: 31 credits

**General University Requirements**

Complete the general university requirements. (p. 89)

**Certificate Requirements**

Complete the certificate requirements. (p. 91) 1

**General Requirements**

AFPM F145 Basic Mathematics 1
AFPM F146  Basic Electricity  2
AFPM F147  Physics for Mechanics  0.5
AFPM F148  Aircraft Drawing  1
AFPM F149  Fluid Lines and Fittings  0.5
AFPM F150  Materials and Processes  2
AFPM F151  Cleaning and Corrosion Control  1
AFPM F152  Federal Aviation Regulations  1
AFPM F153  Weight and Balance  1
AFPM F154  Ground Operations and Servicing  0.5

**Airframe Structures Requirements**
AFPM F256  NonMetallic Structures  1
AFPM F262  Aircraft Coverings  1
AFPM F263  Aircraft Finishes  0.5
AFPM F264  Sheet Metal Structures  3
AFPM F265  Aircraft Welding  1.5
AFPM F266  Assembly and Rigging  1.5
AFPM F267  Airframe Inspections  0.5
AFPM F270  Airframe Testing  0.5

**Airframe Systems and Components Requirements**
AFPM F260  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

**Total Credits**  49

1 As part of the certificate requirements, the communication, computation and human relations content is embedded in the major required courses for this program.

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**Certificate, Airframe and Powerplant**

Minimum Requirements for Certificate: 49 credits

**General University Requirements**
Complete the general university requirements. (p. 89)

**Certificate Requirements**
Complete the certificate requirements. (p. 91) 1

**General Requirements**
AFPM F145  Basic Mathematics  1
AFPM F146  Basic Electricity  2
AFPM F147  Physics for Mechanics  0.5
AFPM F148  Aircraft Drawing  1
AFPM F149  Fluid Lines and Fittings  0.5
AFPM F150  Materials and Processes  2
AFPM F151  Cleaning and Corrosion Control  1
AFPM F152  Federal Aviation Regulations  1

**Airframe Structures Requirements**
AFPM F256  NonMetallic Structures  1
AFPM F262  Aircraft Coverings  1
AFPM F263  Aircraft Finishes  0.5
AFPM F264  Sheet Metal Structures  3
AFPM F265  Aircraft Welding  1.5
AFPM F266  Assembly and Rigging  1.5
AFPM F267  Airframe Inspections  0.5
AFPM F270  Airframe Testing  0.5

**Airframe Systems and Components Requirements**
AFPM F260  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 F260  Aircraft Landing Gear Systems  1.5
AFPM F250  Powerplant Exhaust Systems  0.5
AFPM F252  Propellers  2

**Total Credits**  49

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

**General University Requirements**
Complete the general university requirements. (p. 89)

**Certificate Requirements**
Complete the certificate requirements. (p. 91) 1

**General Requirements**
AFPM F145  Basic Mathematics  1
AFPM F146  Basic Electricity 2
AFPM F147  Physics for Mechanics 0.5
AFPM F148  Aircraft Drawing 1
AFPM F149  Fluid Lines and Fittings 0.5
AFPM F150  Materials and Processes 2
AFPM F151  Cleaning and Corrosion Control 1
AFPM F152  Federal Aviation Regulations 1
AFPM F153  Weight and Balance 1
AFPM F154  Ground Operations and Servicing 0.5

**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 and Systems 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

Total Credits 31

1 As part of the certificate requirements, the communication, computation and human relations content is embedded in the major required courses for this program.

**Note:** This is a one-year program, usually starting at the beginning of September. Entry at other times is allowed only with departmental approval. A personal background check and drug test will be required prior to acceptance into the airframe and powerplant, airframe or powerplant certificate programs.

**Certificate, Business Management, Applied**

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**

- **Certificate Requirements**
  - Communication
    - Select one from the following: 3
      - ABUS F170  Business English
      - ABUS F271  Business Communications
      - ENGL F111X  Introduction to Academic Writing
      - ENGL F212  Business, Grant and Report Writing
  - Computation
    - ABUS F155  Business Math (or any MATH course at the F100 level or above) 3
  - A.A.S.-Approved Human Relations Course
    - ABUS F154  Human Relations (recommended) 3
  - General Business
    - ABUS F101  Principles of Accounting I 3
    - ABUS F161  Personal and Business Finance 3
    - BA F151X  Introduction to Business 3

Minimum Requirements for Certificate: 30-36 credits

**Certificate Requirements**

- Communication
  - Select one from the following: 3
    - ABUS F170  Business English
    - ABUS F271  Business Communications
    - ENGL F111X  Introduction to Academic Writing
    - ENGL F212  Business, Grant and Report Writing
  - Computation
    - ABUS F155  Business Math (or any MATH course at the F100 level or above) 3
  - A.A.S.-Approved Human Relations Course
    - ABUS F154  Human Relations (recommended) 3
  - General Business
    - ABUS F101  Principles of Accounting I 3
    - ABUS F161  Personal and Business Finance 3
    - BA F151X  Introduction to Business 3
Select one from the following concentrations: 12-18

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Computer Applications</td>
<td>CIOS F130 Microcomputer Word Processing 3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CIOS F135 Microcomputer Spreadsheets 3</td>
<td>3</td>
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<tr>
<td></td>
<td>CIOS F240 Microcomputer Databases 3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CIOS F146 Using Internet Tools and Technologies 3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or CITS F220 Implementing Internet Tools and Technologies</td>
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<td>Total Credits</td>
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**FINANCE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABUS F160 Principles of Banking</td>
<td>3</td>
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<tr>
<td>ABUS F210 Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F233 Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F234 Introduction to Investing</td>
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<td>Total Credits</td>
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**GENERAL BUSINESS**

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABUS F210 Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F220 Income Tax</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F221 Microcomputer Accounting QuickBooks</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F235 Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F242 Introductory Human Resources Management</td>
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<td>Total Credits</td>
<td>12</td>
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</table>

**HUMAN RESOURCES**

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<tr>
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<tbody>
<tr>
<td>ABUS F141 Payroll Accounting</td>
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<td>Total Credits</td>
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**MARKETING**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABUS F179 Fundamentals of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F231 Introduction to Personnel</td>
<td>3</td>
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<tr>
<td>or BA F307 Introductory Human Resources Management</td>
<td>3</td>
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<tr>
<td>ABUS F242 Employment Law</td>
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<tr>
<td>or BA F317 Employment Law</td>
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<td>Total Credits</td>
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**OFFICE ADMINISTRATION**

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<tr>
<td>ABUS F170 Business English</td>
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<tr>
<td>ABUS F182 Office Procedures</td>
<td>3</td>
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<tr>
<td>Select six credits from the following: 6</td>
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<tr>
<td>ABUS F183 Professional Skills for Job Hunt</td>
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</tr>
<tr>
<td>ABUS F199 Practicum in Applied Business</td>
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</tr>
<tr>
<td>CIOS F130 Microcomputer Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>CIOS F135 Microcomputer Spreadsheets</td>
<td>3</td>
</tr>
<tr>
<td>CIOS F150 Computer Business Applications</td>
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<td>Total Credits</td>
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**PUBLIC MANAGEMENT**

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<tbody>
<tr>
<td>ABUS F235 Fund Accounting for Nonprofits</td>
<td>3</td>
</tr>
<tr>
<td>PS F100X Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>PS F101 Introduction to American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F232 Contemporary Management Issues</td>
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</tr>
<tr>
<td>Total Credits</td>
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</table>

**RECREATIONAL GUIDING**

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<td>ABUS F175 Customer Service</td>
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<tr>
<td>NRM F161 Wilderness Leadership Education</td>
<td>3</td>
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<td>Select one from the following: 3</td>
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<tr>
<td>EMS F152 Emergency Trauma Training First Responder</td>
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<tr>
<td>More advanced Emergency First Responder Training</td>
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<tr>
<td>RECR electives</td>
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<td>Total Credits</td>
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**RETAIL MANAGEMENT**

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ABUS F179 Fundamentals of Supervision</td>
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<tr>
<td>or BA A231 Fundamentals of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F231 Introduction to Personnel</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F260 Marketing Practices</td>
<td>3</td>
</tr>
<tr>
<td>or BA A260 Marketing Practices</td>
<td>3</td>
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<tr>
<td>Total Credits</td>
<td>12</td>
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</tbody>
</table>
BA A266  Retailing Management  3
CIOS F150  Computer Business Applications  3
or CIOS A103  Introduction to Personal Computers  3
Select one from the following:  3
COMM F121X  Introduction to Interpersonal Communication  1
COMM F131X  Fundamentals of Oral Communication: Group Context  1
COMM F141X  Fundamentals of Oral Communication: Public Context  1
COMM A111  Fundamentals of Oral Communication  1
CIOS A261A  Interpersonal Skills in Organization  1
COMM A237  Interpersonal Communication  1
COMM F180X  Introduction to Human Communication  1

Total Credits  18

1 Courses offered via distance delivery from UAA

TOURISM
ABUS F158  Introduction to Tourism  3
ABUS F175  Customer Service  3
ABUS F199  Practicum in Applied Business  3
Select from of the following:  3
ABUS F256  Small Hotel, Bed and Breakfast, and Lodge Operations  1
ABUS F267  Transportation and Logistics Management  1
ABUS F269  Food and Beverage Management  1

Total Credits  12

Note: Other courses specific to individual education and career goals may be substituted with program approval.

Business, Applied

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/abus/ (http://www.ctc.uaf.edu/programs/abu)

A.A.S. Degree

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. 106)

With concentrations in:

• Administrative Management (p. 107)
• Applied Management (p. 107)
• Computer Applications (p. 107)
• Entrepreneurship (p. 107)
• Finance (p. 107)
• Health Care Management (p. 107)
• Human Resources (p. 107)
• Management (p. 108)
• Marketing (p. 108)
• Public Management (p. 108)
• Recreation and Guiding Management (p. 108)
• Tourism (p. 108)

Minors

• Minor, General Business (p. 108)
• Minor, Recreation and Guiding Management (p. 108)

A.A.S., Business, Applied


Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements

Complete the A.A.S. degree requirements. (p. 95) 1

General Business Requirements

ABUS F101  Principles of Accounting I  3
ABUS F161  Personal and Business Finance  3
ABUS F175  Customer Service  3
ABUS F179  Fundamentals of Supervision  3
or BA F307  Introductory Human Resources Management  3
Select one from the following:  3
ABUS F232  Contemporary Management Issues  1
ECON F201X  Principles of Economics I: Microeconomics  1
ECON F202X  Principles of Economics II: Macroeconomics  1
Select one from the following:  3
ABUS F241  Applied Business Law I  1
ABUS F242  Employment Law  1
BA F317  Employment Law  1
Select one from the following:  3
ABUS F260  Marketing Practices  1
ABUS F263  Public Relations  1
BA F343  Principles of Marketing
BA F151X  Introduction to Business 3

**Concentrations**

Select one from the following concentrations: 21

- Administrative Management
  - Applied Management
  - Computer Applications
  - Entrepreneurship
  - Finance
  - Health Care Management
  - Human Resources
  - Management
  - Marketing
  - Public Management
  - Recreation and Guiding Management
  - Tourism

**Total Credits** 45

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F102C</td>
<td>Keyboarding: Document Formatting</td>
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</tr>
<tr>
<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 English</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>6</td>
<td></td>
</tr>
</tbody>
</table>

Select 6 credits from the following:

- ABUS F183  Professional Skills for Job Hunt
- ABUS F199  Practicum in Applied Business
- CIOS F130  Microcomputer Word Processing
- CIOS F135  Microcomputer Spreadsheets
- CIOS F150  Computer Business Applications

**Total Credits** 21

#### APPLIED MANAGEMENT

Select one from the following: 21

- A university-approved certificate
  - A professional, technical or vocational license or certification issued by government or industry and 21 department-approved electives

**Total Credits** 21

#### COMPUTER APPLICATIONS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 CIOS F220</td>
<td>Implementing Internet Tools and Technologies</td>
<td></td>
</tr>
<tr>
<td>CIOS F233</td>
<td>Desktop Publishing</td>
<td>3</td>
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</tbody>
</table>

or CIOS F255  Digital Graphics

ABUS, ACCT, BA, CITS or CIOS electives 6

**Total Credits** 21

#### ENTREPRENEURSHIP

Select one from 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
- ABUS F233  Financial Management 3
- or ABUS F234  Introduction to Investing
- ABUS F265  Seminar in Applied Marketing
- ABUS F272  Small-Business Planning
- ABUS F273  Managing a Small Business
- ABUS F274  Business in the Digital World
- ABUS, ACCT, BA, CITS or CIOS electives 3

**Total Credits** 21

#### FINANCE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</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 3</td>
<td></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>
<tr>
<td>ABUS F274</td>
<td>Business in the Digital World</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 21

#### HEALTH CARE MANAGEMENT

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<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>
</tbody>
</table>

**Total Credits** 21

#### HUMAN RESOURCES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<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>
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</tr>
<tr>
<td>ABUS F242</td>
<td>Employment Law</td>
<td>3</td>
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<tr>
<td>or BA F317</td>
<td>Employment Law</td>
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<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>
</tbody>
</table>

**Total Credits** 21
ABUS, ACCT, BA or CIOS electives  
Total Credits 3

MANAGEMENT
ABUS, ACCT, BA, ECON, MATH or STAT or other department-approved electives 21
Recommended courses include:
MATH F122X Precalculus for Business and Economics  
MATH F230X Calculus Essentials with Applications  
ECON F100X Political Economy  
ECON F201X Principles of Economics I: Microeconomics  
ECON F202X Principles of Economics II: Macroeconomics  
ECON F227 Introductory Statistics for Economics and Business  
BA F254 Personal Finance  
STAT F200X Elementary Probability and Statistics  
ABUS F201 Principles of Accounting II  
ABUS F202 Principles of Accounting III  
Total Credits 21

MARKETING
ABUS F178 Professionalism 3  
ABUS F265 Seminar in Applied Marketing 3  
ABUS F274 Business in the Digital World 3  
CIOS F233 Desktop Publishing 3  
or CIOS F255 Digital Graphics 3  
CIOS or CITS F200 level or above Internet or web design elective 3  
ABUS, BA or CIOS electives 6  
Total Credits 21

PUBLIC MANAGEMENT
ABUS F235 Fund Accounting for Nonprofits 3  
PS F100X Political Economy 3  
PS F101 Introduction to American Government and Politics 3  
PS F212 Introduction to Public Administration 3  
Select one from the following: 3  
PS F403 Public Policy  
ABUS F242 Employment Law  
BA F317 Employment Law  
ABUS, ACCT, CIOS or PS electives 6  
Total Credits 21

RECREATION AND GUIDING MANAGEMENT
ABUS F158 Introduction to Tourism 3  
NRM F101 Natural Resources Conservation and Policy 3  
NRM F161 Wilderness Leadership Education 3  
Select one of the following: 3  
EMS F152 Emergency Trauma Training First Responder  
EMS F195 Special Topics  
EMS F257 More advanced Emergency First Responder Training  
or NRM F361 Advanced Wilderness Leadership Education 3  
RECR electives 6  
Total Credits 21

TOURISM
ABUS F158 Introduction to Tourism 3  
ABUS F199 Practicum in Applied Business 3  
ABUS F265 Seminar in Applied Marketing 3  
ABUS F273 Managing a Small Business 3  
Select 3 credits from the following electives: 3  
ABUS F256 Small Hotel, Bed and Breakfast, and Lodge Operations  
ABUS F267 Transportation and Logistics Management  
ABUS F269 Food and Beverage Management  
Select one from the following elective options: 6  
Option 1  
ABUS, ACCT, BA, CAH or CIOS electives  
Option 2  
ABUS F299 Practicum in Applied Business (Study Abroad)  
Foreign language  
Total Credits 21

Minor, Applied Business — General Business
Minimum Requirements for Minor: 18 credits
ABUS F101 Principles of Accounting I 3  
ABUS F161 Personal and Business Finance 3  
ABUS F175 Customer Service 3  
Select one from the following: 3  
ABUS F232 Contemporary Management Issues  
ABUS F272 Small-Business Planning  
ABUS F273 Managing a Small Business  
ABUS F260 Marketing Practices 3  
or ABUS F263 Public Relations  
BA F151X Introduction to Business 3  
Total Credits 18

Note: Other courses specific to individual education and career goals may be substituted with program approval.

Minor, Applied Business — Recreation and Guiding Management
Minimum Requirements for Minor: 18 credits
ABUS F158 Introduction to Tourism 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABUS F175</td>
<td>Customer Service</td>
<td>3</td>
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<tr>
<td>NRM F161</td>
<td>Wilderness Leadership Education</td>
<td>3</td>
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<td>Select one of the following:</td>
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<tr>
<td>EMS F152</td>
<td>Emergency Trauma Training First Responder</td>
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<tr>
<td>EMS F195</td>
<td>Special Topics</td>
<td></td>
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<tr>
<td></td>
<td>More advanced Emergency First Responder Training</td>
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<td>Select 6 credits from the following electives:</td>
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<tr>
<td>RECR electives</td>
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<tr>
<td>NRM F361</td>
<td>Advanced Wilderness Leadership Education</td>
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<tr>
<td>ABUS/NRM/RECR-approved practicum</td>
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</table>

Total Credits: 18

Note: Other courses specific to individual education and career goals may be substituted with program approval.

Certificate

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 CHP 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. 109)

Certificate, Community Health

Minimum Requirements for Certificate: 34 credits

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91) 1

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<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>
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<td></td>
<td>Select 5 or more credits from the following:</td>
<td>5</td>
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<tr>
<td>CHP F203</td>
<td>Clinical Update for Community Health Practitioners</td>
<td></td>
</tr>
<tr>
<td>CHP F207</td>
<td>Maternal and Infant Health</td>
<td></td>
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<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>
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<tr>
<td>CHP F220</td>
<td>Women's Health: Breast and Cervical Cancer Screening</td>
<td></td>
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<tr>
<td>CHP F250</td>
<td>Current Issues in Rural Health Care 1</td>
<td></td>
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<tr>
<td>CHP F293</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>EMS — any F200-level courses</td>
<td></td>
<td></td>
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<td>HLTH — any F200-level courses</td>
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<tr>
<td>Electives</td>
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</table>

Total Credits: 45

1 May repeat up to 3 credits toward A.A.S. degree.
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

College of Rural and Community Development  
Community and Technical College  
907-455-2846  
www.ctc.uaf.edu/programs/cm/ (http://www.ctc.uaf.edu/programs/cm)

#### 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.

#### Degree

- A.A.S., Construction Management (p. 110)

### A.A.S., Construction Management

**Minimum Requirements for Degree: 62 credits**

Students must earn a C- grade or better in each course.

#### General University Requirements

Complete the general university requirements. (p. 89)

#### A.A.S. Degree Requirements

Complete the A.A.S. degree requirements. (p. 95)  

#### Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
<td>3</td>
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<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>
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<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>
<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>
<tr>
<td>CM F263</td>
<td>Civil Construction Cost Estimating</td>
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<tr>
<td>CM F299</td>
<td>Construction Management Internship</td>
<td>3</td>
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<tr>
<td>DRT F170</td>
<td>Beginning CAD</td>
<td>3</td>
</tr>
<tr>
<td>MATH F152X</td>
<td>Trigonometry</td>
<td>3</td>
</tr>
<tr>
<td>PHYS F103X</td>
<td>College Physics I</td>
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**Total Credits: 49**

As part of the A.A.S. degree requirement complete ENGL F111X, ENGL F212 or ENGL F213X, and COMM F131X or COMM 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  
Community and Technical College  
907-455-2800  
www.uaf.edu/iac/ (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. 110)

### Certificate, Construction Trades Technology

**Minimum Requirements for Certificate: 30 credits**

Students must earn a C- or better in each course.

#### General University Requirements

Complete the general university requirements. (p. 89)
Certificate Requirements
Complete the certificate requirements. (p. 91)

Computation
CTT F106 Construction Mathematics 3
or TTCH F131 Mathematics for the Trades

Program Requirements
CTT F100 Construction Technology Core 3
or CTT F101 and CTT F102 and CTT F103
and Introduction to Hand and Power Tools
and Introduction to Blueprint Reading
HLTH F122 First Aid and CPR 1

Concentrations
Select one from the following concentrations: 17-23.5
Carpentry
Facility Maintenance
Sustainable Energy

Total Credits 24-30.5

1 As part of the certificate requirement, complete 3 credits each in the communication and human relations requirements.

Concentrations
CARPENTRY
CTT F110 Residential Carpentry I 8.5
or CTT F111 and CTT F112 and CTT F113 and CTT F114
Materials and Tools Used in the Trade
and Floor Systems, Wall and Ceiling Framing
and Roof Framing, Windows and Exterior Doors
and Introduction to Concrete Materials and Forms
CTT F115 Residential Carpentry–Level II 12
or CTT F116 and CTT F117 and CTT F118 and CTT F119
Reading Plans and Site Layout–Level I
and Exterior Finish and Moisture Protection
and Roofing, Stairs and Metal Studs Applications
and Drywall and Interior Finish Applications
CTT F199 Student Practicum I 1-3

Total Credits 21.5-23.5

FACILITY MAINTENANCE
CTT F130 Introduction to Facilities Maintenance 1
CTT F131 Interior Repairs: Drywall, Woodwork 1
and Window Replacement
CTT F132 Flooring Installation: Vinyl, Wood and Parquet 1
CTT F133 Cabinet Installation with Countertops 1
CTT F135 Boiler Troubleshooting and Burner Repair 2
CTT F137 Appliance Troubleshooting and Repair 2
CTT F138 Residential Heating Controls 2
CTT F151 Introduction to Plumbing Tools and Drawings 1
CTT F153 Plastic and Copper Pipe and Fittings 1
Other advisor approved electives related to the concentration 3
CTT F199 Student Practicum I 1

Total Credits 17

1 Students must take a minimum of 2 credits in CTT F199.

SUSTAINABLE ENERGY
DEVM F105 Intermediate Algebra 3
ENVI F220 Introduction to Sustainable Energy 3
Select at least 9 credits from the following: 9
CS S201 Cold Climate Construction 1
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 2

Total Credits 18

1 CS 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
www.ctc.uaf.edu/programs/culinary/ (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 (p. 111)

Certificates
• Culinary Arts (p. 112)
• Baking and Pastry Arts (p. 112)

A.A.S., Culinary Arts
Minimum Requirements for Degree: 60 credits
Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)
A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements
CAH F101 Introduction to the Culinary Field 1
Certificate, Baking and Pastry Arts

Minimum Requirements for Certificates: 30 credits

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAH F140</td>
<td>Culinary I: Principles and Techniques</td>
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</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>
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<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>
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<tr>
<td>CAH F199</td>
<td>Culinary Arts Externship</td>
<td>2</td>
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<tr>
<td>CAH F230</td>
<td>Menu Planning</td>
<td>1</td>
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<td>CAH F242</td>
<td>Culinary III: Vegetables and Starch</td>
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<td>CAH F243</td>
<td>Culinary IV: A la Carte Cookery</td>
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<td>CAH F248</td>
<td>Intermediate Baking and Pastry</td>
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<td>CAH F250</td>
<td>Garde Manger</td>
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<tr>
<td>CAH F253</td>
<td>Storeroom Purchasing and Receiving</td>
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<tr>
<td>CAH F256</td>
<td>Restaurant and Hospitality Cost Management</td>
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</tr>
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</table>

Total Credits: 45

1 As part of the degree requirement, CAH F255 is recommended to complete the human relations requirement.

Certificate, Culinary Arts

Minimum Requirements for Certificates: 30 credits

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<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>
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Select 6-9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CAH F117</td>
<td>Art in Cake Icing</td>
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</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>

Total Credits: 21-24

1 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.

Diesel/Heavy Equipment

Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/diesel/
(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.

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)  

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>
<tr>
<td>DSLT F107</td>
<td>Basic Electrical Systems and Electronic Fuel Injection</td>
<td>3</td>
</tr>
<tr>
<td>DSLT F110</td>
<td>Basic Industrial Fabrication</td>
<td>2</td>
</tr>
<tr>
<td>DSLT F111</td>
<td>Diesel Emissions</td>
<td>2</td>
</tr>
<tr>
<td>DSLT F123</td>
<td>Heavy Duty Braking Systems</td>
<td>3</td>
</tr>
<tr>
<td>DSLT F154</td>
<td>Diesel Fuel Injection</td>
<td>3</td>
</tr>
<tr>
<td>DSLT F201</td>
<td>Manual Transmissions and Differentials</td>
<td>3</td>
</tr>
<tr>
<td>DSLT F202</td>
<td>Heavy Duty Automatic Transmissions</td>
<td>2</td>
</tr>
<tr>
<td>DSLT F210</td>
<td>Heavy Equipment Fabrication</td>
<td>2</td>
</tr>
<tr>
<td>DSLT F254</td>
<td>Engine</td>
<td>5</td>
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<tr>
<td>MECN F103</td>
<td>Starting and Charging Systems</td>
<td>3</td>
</tr>
<tr>
<td>MECN F210</td>
<td>Hydraulics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 36

1  As part of the certificate requirements, the communication, human relations and computation content is embedded in the major required courses for this program.

Drafting Technology
Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/drafting/ (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.

Degree
• A.A.S., Drafting Technology (p. 113)

Certificate
• Drafting Technology (p. 113)

A.A.S, Drafting Technology
Minimum Requirements for Degree: 60-63 credits
Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>
<tr>
<td>DRT F121</td>
<td>Construction Documents and Drawings</td>
<td>3</td>
</tr>
<tr>
<td>DRT F260</td>
<td>Drafting Internship</td>
<td>3</td>
</tr>
<tr>
<td>CM F201</td>
<td>Construction Project Management</td>
<td>3</td>
</tr>
<tr>
<td>ES F101</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 42-45

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.

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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
Select one from the following concentrations:  
- Architectural Drafting  
- Civil Drafting  
- Information Technology  
- Mechanical and Electrical Drafting  
- Process Technology  
- Structural Drafting  

Total Credits 24-25

Concentrations

ARCHITECTURAL DRAFTING
- CM F102 Methods of Building Construction 3
- CM F123 Codes and Standards 3
- DRT F140 Architectural Drafting 3

Total Credits 9

CIVIL DRAFTING
- CM F102 Methods of Building Construction 3
- CM F213 Civil Technology 3
- DRT F150 Civil Drafting 3

Total Credits 9

INFORMATION TECHNOLOGY
- CITS F203 Information Technology Support Fundamentals 4
- CITS F204 Introduction to Network Support and Administration 3
- CITS F261 Computer and Network Security 3

Total Credits 10

MECHANICAL AND ELECTRICAL DRAFTING
- CM F102 Methods of Building Construction 3
- CM F142 Mechanical and Electrical Technology 3
- DRT F155 Mechanical and Electrical Drafting 3

Total Credits 9

Process Technology
- PRT F101 Introduction to Process Technology 3
- PRT F110 Introduction to Occupational Safety, Health and Environmental Awareness 3
- PRT F117 Drafting for Technicians 3

Total Credits 9

STRUCTURAL DRAFTING
- CM F102 Methods of Building Construction 3
- CM F231 Structural Technology 3
- DRT F145 Structural Drafting 3

Total Credits 9

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  
www.ctc.uaf.edu/programs/e-childhood/ (http://www.ctc.uaf.edu/programs/e-childhood)

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.

Degree

- A.A.S., Early Childhood Education (p. 114)

A.A.S., Early Childhood Education

Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements

Complete the A.A.S. degree requirements. (p. 95)  

Program Requirements

Complete the following:

<table>
<thead>
<tr>
<th>Course</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>ECE F130</td>
<td>Culture, Learning and the Young Child</td>
<td>2</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.

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### Certificate, Environmental Studies

**Minimum Requirements for Certificate: 30-35 credits**

Students must earn a C- grade or better in each course.

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### General University Requirements

Complete the general university requirements. (p. 89)

---

### Certificate Requirements

Complete the certificate requirements. (p. 91)

**Communication**

- ENGL F111X Introduction to Academic Writing 3
- or ABUS F170 Business English

**Computation**

- DEV M105 Intermediate Algebra (or MATH/CS/STAT at the 100 level or higher) 3

**Human Relations**

Select one from the following: 3

- ANTH/SOC F100X Individual, Society and Culture
- ABUS F154 Human Relations
- Other program-approved discipline-based human relations course

**Program Requirements**

Select two from the following science foundation courses: 8

- ATM F101X Weather and Climate of Alaska
- BIOL F103X Biology and Society
- or BIOL F104X Natural History of Alaska
- or BIOL F115X Fundamentals of Biology I
- CHEM F103X Basic General Chemistry
- or CHEM F105X General Chemistry I
- GEOG F111X Earth and Environment: Elements of Physical Geography
- MSL F111X The Oceans
- ENVI F101 Introduction to Environmental Science 3
- ENVI F110 Introduction to Water Quality I: Measurement 1
- ENVI F130 Introduction to the National Environmental Policy Act 1
- ENVI F160 Internship in Environmental Studies 1-2
- ENVI F260 Field Techniques for Environmental Technicians 2
- ENVI F265 Introduction to Methods in Environmental Studies Reporting 2

Select one from the following electives: 3-4

- ATM F101X Weather and Climate of Alaska
- BIOL F103X Biology and Society
- or BIOL F104X Natural History of Alaska
- or BIOL F115X Fundamentals of Biology I
- CHEM F103X Survey of Organic Chemistry and Biochemistry
- CHEM F105X General Chemistry I
- DEVS F100 Introduction to Science
- FISH F101 Introduction to Fisheries
- GEOG F111X Earth and Environment: Elements of Physical Geography
- HLRM F130 Research Field Logistics
- NRM F101 Natural Resources Conservation and Policy
- RD F250 Grant Writing for Community Development
- STAT F200X Elementary Probability and Statistics 1
- Advisor-approved elective 2

**Total Credits** 30-32
Ethnobotany

College of Rural and Community Development
907-474-7143
www.bethel.uaf.edu (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.

Certificate
• Ethnobotany (p. 116)

Certificate, Ethnobotany
Minimum Requirements for Certificate: 30-32 credits

Students must earn a C- or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

Communication
ENGL F111X Introduction to Academic Writing 3
or ABUS F170 Business English

Computation
Select one from the following: 3-4
DEVM F105 Intermediate Algebra
MATH F113X Concepts and Contemporary Applications of Mathematics
MATH F151X College Algebra for Calculus

Human Relations
ANTH/SOC F100X Individual, Society and Culture 3
ABUS F154 Human Relations 3

Program Requirements
Complete the following science foundation courses: 4
BIOL F103X Biology and Society
or BIOL F104X Natural History of Alaska
or BIOL F116X Fundamentals of Biology II
CHEM F103X Basic General Chemistry
or CHEM F105X General Chemistry I

Complete the following:
EBOT F100 Introduction to Ethnobotany 3
EBOT F200 Seminar in Ethnobotany 1
EBOT F210 Ethical Wildcrafting 1
EBOT F220 Ethnobotanical Techniques 2
EBOT F230 Ethnobotanical Chemistry 3

Select 3-4 credits from the following approved electives: 3-4
ENGL F212 Business, Grant and Report Writing
ENGL F213X Academic Writing about the Social and Natural Sciences
100-200-level advisor-approved electives from the following subject areas: Alaska Native Languages, Alaska Native Studies, Applied Art, Anthropology, Economics, Education, Eskimo, Biology or Natural Resource Management

Total Credits 29-31

Fire Science

Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/emergency/ (http://www.ctc.uaf.edu/programs/emergency)

A.A.S. Degree
Minimum Requirements for Degree: 63-69 credits

The fire science program 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. 116)

Minor
• Minor (p. 118)

A.A.S., Fire Science

Students must earn a C- or better in each course.

Concentrations: Hazardous Materials Control, Municipal Fire Control, Public Safety and Wildland Fire Control
HAZARDOUS MATERIALS CONTROL
Minimum Requirements for Degree: 69 credits

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS F170</td>
<td>EMT: Emergency Medical Technician I</td>
<td>6</td>
</tr>
<tr>
<td>FIRE F110</td>
<td>Introduction to Hazardous Waste Operations and Emergency Response</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 F203</td>
<td>Hazardous Materials Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F207</td>
<td>Hazardous Materials Technician</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F210</td>
<td>Fire Administration I</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F220</td>
<td>Emergency Services Safety, Health and Survival</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE F212</td>
<td>Building and Fire Codes</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F215</td>
<td>Advanced Hazardous Materials Technician</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F216</td>
<td>Methods of Instruction for Emergency Services Training</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F293</td>
<td>Special Topics</td>
<td>3</td>
</tr>
</tbody>
</table>

General Electives | 9 |
Total Credits | 51 |

Note: Program electives and general electives must be approved by the student’s advisor.

MUNICIPAL FIRE CONTROL
Minimum Requirements for Degree: 69 credits

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY F231/EMS F257</td>
<td>Arctic Survival</td>
<td>3</td>
</tr>
<tr>
<td>EMS F170</td>
<td>EMT: Emergency Medical Technician I</td>
<td>6</td>
</tr>
<tr>
<td>EMS F176</td>
<td>Aeromedical Evacuations in Alaska</td>
<td>1</td>
</tr>
<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 F117</td>
<td>Rescue Practices</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F127</td>
<td>Vessel Safety: Emergency Equipment, Procedures and Drills</td>
<td>1</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>
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</tr>
<tr>
<td>FIRE F137</td>
<td>Firefighter I, Series IV</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F218</td>
<td>Advanced Rescue Practices</td>
<td>3</td>
</tr>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</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>

Program Electives
Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS F261</td>
<td>EMT: Emergency Medical Technician II</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F123</td>
<td>Fire Investigations I</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F151</td>
<td>Wildland Firefighter I</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F212</td>
<td>Building and Fire Codes</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F216</td>
<td>Methods of Instruction for Emergency Services Training</td>
<td>3</td>
</tr>
<tr>
<td>JUST F345</td>
<td>Police Problems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits | 54 |

Note: Program electives must be approved by the student’s advisor.

PUBLIC SAFETY
Minimum Requirements for Degree: 68 credits

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS F170</td>
<td>EMT: Emergency Medical Technician I</td>
<td>6</td>
</tr>
<tr>
<td>EMS F176</td>
<td>Aeromedical Evacuations in Alaska</td>
<td>1</td>
</tr>
<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 F117</td>
<td>Rescue Practices</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F127</td>
<td>Vessel Safety: Emergency Equipment, Procedures and Drills</td>
<td>1</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 F218</td>
<td>Advanced Rescue Practices</td>
<td>3</td>
</tr>
<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</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>

Program Electives
Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS F261</td>
<td>EMT: Emergency Medical Technician II</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F123</td>
<td>Fire Investigations I</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F151</td>
<td>Wildland Firefighter I</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F212</td>
<td>Building and Fire Codes</td>
<td>3</td>
</tr>
<tr>
<td>FIRE F216</td>
<td>Methods of Instruction for Emergency Services Training</td>
<td>3</td>
</tr>
<tr>
<td>JUST F345</td>
<td>Police Problems</td>
<td>3</td>
</tr>
</tbody>
</table>
Minor, Fire Science

Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>EMS F170</td>
<td>EMT: Emergency Medical Technician I</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 18

Note: Program electives and general electives must be approved by the student’s advisor.

Health, Allied

College of Rural and Community Development
907-474-7143 (http://catalog.uaf.edu/certificates-associate/certificate-associate-programs/health-allied/tel)
Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/health/ (http://www.ctc.uaf.edu/programs/health)

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, 353 East Wacker Drive, Chicago, IL 60601, 312-553-9355. The medical assistant certificate incorporates both the medical office reception occupational endorsement and the medical/dental reception certificate.

PHLEBOTOMY
Training is also available in phlebotomy. 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.

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 co-requisite 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 ENGL F111X and DEV M 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 F213X or BIOL F214X.

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 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 www.ctc.uaf.edu/health/ (http://www.ctc.uaf.edu/health).

Degrees
- A.A.S., Dental Assistant (p. 119)
- A.A.S., Medical Assistant (p. 120)

Certificates
- Dental Assistant (p. 120)
- Medical Assistant (p. 120)
- Medical/Dental Reception (p. 121)
- Pre- (p. 121) Nursing Qualifications (p. 121)

A.A.S., Dental Assistant

Minimum Requirements for Degree: 61 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA F132</td>
<td>Administrative Procedures for the Dental Assistant</td>
<td>2</td>
</tr>
<tr>
<td>DA F150</td>
<td>Dental Radiography</td>
<td>4</td>
</tr>
<tr>
<td>DA F151</td>
<td>Dental Infection Control</td>
<td>2</td>
</tr>
<tr>
<td>DA F152</td>
<td>Dental Materials and Applications</td>
<td>4</td>
</tr>
<tr>
<td>DA F153</td>
<td>Anatomy for Dental Assistants</td>
<td>3</td>
</tr>
<tr>
<td>DA F251</td>
<td>Clinical Chairside I for Dental Assistants</td>
<td>6</td>
</tr>
<tr>
<td>DA F252</td>
<td>Clinical Chairside II for Dental Assistants</td>
<td>6</td>
</tr>
<tr>
<td>DA F253</td>
<td>Clinical Chairside III for Dental Assistants</td>
<td>3</td>
</tr>
<tr>
<td>DA F254</td>
<td>Dental Assistant Practicum</td>
<td>4</td>
</tr>
<tr>
<td>HLTH F110</td>
<td>Professional Skills for the Workplace</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F114</td>
<td>Fundamentals of Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>HLTH F122</td>
<td>First Aid and CPR (or First Aid/CPR card)</td>
<td>1</td>
</tr>
</tbody>
</table>
### A.A.S., Medical Assistant

**Minimum Requirements for Degree**: 60 credits

Students must earn a C- or better in each course.

#### General University Requirements

Complete the general university requirements. (p. 89)

#### A.A.S. Degree Requirements

Complete the A.A.S. degree requirements. (p. 95)

#### Program Requirements

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIOS F150</td>
<td>Computer Business Applications</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F130</td>
<td>Medical Office Technology</td>
<td></td>
</tr>
<tr>
<td>or BIOL F100X</td>
<td>Human Biology</td>
<td></td>
</tr>
<tr>
<td>HLTH F110</td>
<td>Professional Skills for the Workplace</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F114</td>
<td>Fundamentals of Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL F100X</td>
<td>Human Biology</td>
<td></td>
</tr>
<tr>
<td>HLTH F118</td>
<td>Medical Law and Ethics</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F122</td>
<td>First Aid and CPR (or current First Aid/ CPR card)</td>
<td>1</td>
</tr>
<tr>
<td>HLTH F132</td>
<td>Administrative Procedures I</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F142</td>
<td>Clinical Procedures I</td>
<td>4</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 F236</td>
<td>Outpatient Health Care Reimbursement</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F244</td>
<td>Clinical Procedures II</td>
<td>4</td>
</tr>
<tr>
<td>HLTH F247</td>
<td>Introduction to Pharmacology</td>
<td>2</td>
</tr>
<tr>
<td>HLTH F268</td>
<td>Medical Assisting Practicum</td>
<td>4</td>
</tr>
<tr>
<td>or HLTH F261</td>
<td>and HLTH F267</td>
<td></td>
</tr>
<tr>
<td>or C250 F150</td>
<td>Medical/Dental Office Reption Practicum</td>
<td></td>
</tr>
<tr>
<td>and Medical Assisting Practicum Completion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Approved HLTH, CIOS, ABUS, HUMS, DEVS or COMM electives 3-7

Total Credits: 46

---

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, Health Care Reimbursement

**Minimum Requirements for Certificate**: 30 credits

Students must earn a C- or better in each course.

#### General University Requirements

Complete the general university requirements. (p. 89)

#### Certificate Requirements

Complete the certificate requirements. (p. 91)

#### Program Requirements

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F271</td>
<td>Business Communications</td>
<td></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 F116</td>
<td>Mathematics in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F130</td>
<td>Medical Office Technology</td>
<td>1-3</td>
</tr>
<tr>
<td>or CIOS F150</td>
<td>Business Communications</td>
<td></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>
</tbody>
</table>

Total Credits: 34

### Certificate, Medical Assistant

**Minimum Requirements for Certificate**: 45 credits

Students must earn a C- or better in each course.

#### General University Requirements

Complete the general university requirements. (p. 89)

#### Certificate Requirements

Complete the certificate requirements. (p. 91)

#### Program Requirements

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
<td>3</td>
</tr>
<tr>
<td>or ABUS F271</td>
<td>Business Communications</td>
<td></td>
</tr>
<tr>
<td>HLTH F110</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>HLTH F116</td>
<td>Mathematics in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>DEVM F105</td>
<td>Intermediate Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 34

---

1. As part of the certificate requirements, the communication, computation and human relations content is embedded in the major required courses for this program.
Human Relations
Select 3 credits from the following:
- HLTH F106 Human Behavior in Health Care
- ABUS F154 Human Relations
- SOC F100X Individual, Society and Culture
- PSY F101X Introduction to Psychology

Program Requirements
- HLTH F100 Medical Terminology 3
- HLTH F110 Professional Skills for the Workplace 2
- HLTH F114 Fundamentals of Anatomy and Physiology 4
  or BIOL F100X Human Biology
- HLTH F118 Medical Law and Ethics 2
- HLTH F122 First Aid and CPR (or current First Aid/CPR card) 1
- HLTH F130 Medical Office Technology 3
- HLTH F132 Administrative Procedures I 2
- HLTH F142 Clinical Procedures I 4
- HLTH F234 Administrative Procedures II 4
- HLTH F236 Outpatient Health Care Reimbursement 3
- HLTH F244 Clinical Procedures II 4
- HLTH F268 Medical Assisting Practicum 4
  or HLTH F261 and HLTH F267 Medical/Dental Office Reception Practicum and Medical Assisting Practicum Completion

Total Credits 45

Certificate, Medical/Dental Reception
Minimum Requirements for Certificate: 30-33 credits
Students must earn a C- or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

Communications
- ENGL F111X Introduction to Academic Writing 3
  or ENGL F111X Academic Writing about Literature

Computation
- Select from the following:
  - DEVM F105 Intermediate Algebra
  - HLTH F116 MATH at the 100 level or higher

Human Relations
- HLTH F106 Human Behavior in Health Care 3

Program Requirements
- HLTH F100 Medical Terminology 3
- HLTH F110 Professional Skills for the Workplace 2
- HLTH F118 Medical Law and Ethics 2
- HLTH F122 First Aid and CPR 1
- HLTH F132 Administrative Procedures I 2
- HLTH F234 Administrative Procedures II 4
- HLTH F236 Outpatient Health Care Reimbursement 3
- HLTH F261 Medical/Dental Office Reception Practicum 2

Total Credits 33
Certificate

Minimum Requirements for Certificate: 31 credits

A HLRM program certificate represents the completion of at least 31 credits in the conventional field-based techniques to inventory and monitor northern animal and plant populations combining traditional knowledge with contemporary studies necessary for entry-level natural resource jobs statewide. The certificate also emphasizes place-based domesticated ungulate husbandry and health, applicable regionally and statewide. This certificate may also serve as a bridge to a variety of natural science associate and baccalaureate programs.

Admission is open to all individuals, especially those employed by or interested in employment with state, federal or tribal agencies or other local entities in rural Alaska that provide natural resources 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.

Students whose ACT/SAT scores are not high enough to place them into regular college-level classes must take the ASSET or COMPASS test and be placed in the appropriate developmental-level course.

Certificate

• High Latitude Range Management (p. 122)

Certificate, High Latitude Range Management

Minimum Requirements for Certificate: 31 credits

Students must earn a C- or better in each course.

General University Requirements

Complete the general university requirements. (p. 89)

Certificate Requirements

Complete the certificate requirements. (p. 91)

As part of the certificate requirements, complete:

Communication

ENGL F111X Introduction to Academic Writing 3

Computation

MATH F113X Concepts and Contemporary Applications of Mathematics 3

or ABUS F155 Business Math

Human Relations

ANTH/SOC F100X Individual, Society and Culture 3

or ABUS F154 Human Relations

Program Requirements

NRM F101 Natural Resources Conservation and Policy 3

BIOL F104X Natural History of Alaska 4

HLRM F120 History of Domesticated Alaskan Ungulates 1

HLRM F130 Research Field Logistics 2

HLRM F140 High Latitude Range Management 2

HLRM F150 Alaskan Ungulate Husbandry 2

HLRM F160 Meat Production 2

HLRM F170 Health Issues in Domesticated Ungulates 2

HLRM F201 Field Techniques for Range Management 2

HLRM F205 Report Writing in Range Management 2

Total Credits 31

Human Services

College of Rural and Community Development
907-474-7143
www.ctc.uaf.edu/programs/hums/ (http://www.ctc.uaf.edu/programs/hums)

A.A.S. Degree

Minimum Requirements for Degree: 63 credits

Students in the human services program receive skills-based training within a foundation of theory. After completing foundation courses, students select an area of concentration from the following: addictions counseling, behavioral health, or interdisciplinary concentration. Students learn interviewing and assessment, case management, crisis intervention, group counseling techniques and other specific skills needed within their concentration area.

The program prepares students for entry-level positions in human services agencies. Persons with a strong desire to help others, a sincere respect for mankind and a commitment to their own personal growth may find this field rewarding. They must be emotionally stable, flexible and interested in working with people of diverse social, cultural and economic backgrounds. Recovery from life traumas and addictions can be a positive attribute if the student has successfully worked through specific issues and is willing to continue personal growth.

Students who complete an addictions concentration are eligible for certification as chemical dependency counselor technicians through the Alaska Commission for Behavioral Health Certification.

Each concentration is available to B.A. degree students as a minor. The B.A. degree student must complete the concentration and three HUMS elective credits. Concentrations provide students with skills needed for employment. See minor requirements.

This degree program is delivered collaboratively within the UA system.

Degree

• A.A.S., Human Services (p. 122)

Minor

• Minor (p. 124)

Certification

• Alaska Chemical Dependency Counselor (p. 124)

A.A.S., Human Services

Concentrations: Addictions Counseling, Behavioral Health and Interdisciplinary Concentration
Minimum Requirements for Degree: 63 credits

Students must earn a C grade or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 89)

**A.A.S. Degree Requirements**
Complete the A.A.S. degree requirements. (p. 95)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS F101</td>
<td>Introduction to Human Services</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F102</td>
<td>Standards of Practice</td>
<td>2</td>
</tr>
<tr>
<td>HUMS F120</td>
<td>Cultural Diversity in Human Services</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F125</td>
<td>Introduction to Addictive Processes</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F202</td>
<td>Standards of Practice II</td>
<td>1</td>
</tr>
<tr>
<td>HUMS F215</td>
<td>Individual Interviewing</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F232</td>
<td>Human Service Practicum I</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F233</td>
<td>Human Service Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F301</td>
<td>Ethics in Human Service</td>
<td>3</td>
</tr>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentrations**
Select one from the following concentrations: 12-21

- Addictions Counseling
- Behavioral Health
- Interdisciplinary Concentration

Total Credits: 39-48

**INTERDISCIPLINARY CONCENTRATION**

**Addictions Counseling**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS F105</td>
<td>Personal Awareness and Growth</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F205</td>
<td>Basic Principles of Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>or HUMS F210</td>
<td>Crisis and Grief Counseling</td>
<td></td>
</tr>
<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 (FASD)</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>HUMS F250</td>
<td>Current Issues in Human Services (or any 1 credit course approved by the Human Services Program)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one from the following family courses: 2-3

- ECE F342 | Family Relationships
- HUMS F140 | Family Dynamics
- RHS F120 | Family Systems I
- PSY F240 | Psychology of Development

Total Credits: 17-18

**Behavioral Health**

<table>
<thead>
<tr>
<th>Course</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>
</tbody>
</table>

HUMS F305 | Substance Abuse Counseling | 3
SOC F242 | The Family: A Cross-Cultural Perspective | 3

Elective credits (approved by Human Services Program Coordinator)

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

Total Credits: 21

**Concentrations**

**Behavioral Health**

<table>
<thead>
<tr>
<th>Course</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>
</tbody>
</table>

SOC F242 | The Family: A Cross-Cultural Perspective | 3

Elective credits (approved by Human Services Program Coordinator)

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

Total Credits: 21

**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.

- Example of possible interdisciplinary concentration of human services in restorative justice:

<table>
<thead>
<tr>
<th>Course</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 F251</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems</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.

**General University Requirements**
Complete the general university requirements. (p. 89)

**A.A.S. Degree Requirements**
Complete the A.A.S. degree requirements. (p. 95)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMS F101</td>
<td>Introduction to Human Services</td>
<td>3</td>
</tr>
<tr>
<td>HUMS F301</td>
<td>Ethics in Human Service</td>
<td>3</td>
</tr>
</tbody>
</table>
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.

HUMS F125 Introduction to Addictive Processes 3
HUMS F205 Basic Principles of Group Counseling 3
HUMS F210 Crisis and Grief Counseling 3
HUMS F215 Individual Interviewing 3
HUMS F260 History of Alcohol in Alaska 1
HUMS F301 Ethics in Human Service 3
HUMS F305 Substance Abuse Counseling 3

Total Credits 21

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.

Select one from the following options: 18

Option 1:
- Complete one concentration in human services
- Complete HUMS elective credits

Option 2:
- Complete HUMS-approved elective credits

Total Credits 18

Certificate; A.A.S. Degree

Minimum Requirements for Certificate: 30 credits; for A.A.S. Degree: 60 credits

The information technology specialist certificate and associate programs teach students how to use, support, implement and troubleshoot the computer and information technology systems found in educational, governmental and corporate settings.

The certificate program focuses on foundation-level support skills required to effectively use and troubleshoot computer and information technology systems. Students completing the certificate program will be prepared for entry-level IT positions and to continue their education in the information technology specialist A.A.S. degree program.

The A.A.S. degree program prepares individuals to implement, support, and troubleshoot computer and information technology systems and obtain employment as an IT professional. Associate degrees in computing technology, network and cybersecurity, and network and system administration are offered.

Students entering either the certificate or A.A.S. degree program should meet with a faculty advisor to discuss program requirements and develop an education plan that matches the current skills and goals of the student.

This degree program is delivered collaboratively within the UA system.

Degree

- A.A.S., Information Technology Specialist (p. 124)

Certificate

- Information Technology Specialist (p. 125)

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.

General University Requirements

Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements

Complete the A.A.S. degree requirements. (p. 95)  

Program Requirements

CITS F204 Introduction to Network Support and Administration 3

Select one from the following: 3

CITS F205 Introduction to Microcomputer Programming
CS F103 Introduction to Computer Programming
CS F201 Computer Science I
CITS F212 Server Operating Systems 3
CITS F261 Computer and Network Security 3
CITS F281 Professional Practices in IT 3

Information Technology Specialist

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800

www.ctc.uaf.edu/its/ (http://www.ctc.uaf.edu/its)
As part of the A.A.S. degree requirements, complete DEV M 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 F100X 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**

Select 21-22 credits from the following or from program coordinator-approved courses:

<table>
<thead>
<tr>
<th>Course</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 F265</td>
<td>Directory Services Administration</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 21-22

**NETWORK AND CYBERSECURITY**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

Total Credits: 22

**NETWORK AND SYSTEM ADMINISTRATION**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 F265</td>
<td>Directory Services Administration</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 22

**Certificate, Information Technology Specialist**

Minimum Requirements for Certificate: 30 credits

Students must earn a C- grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 89)

**Certificate Requirements**

Complete the certificate requirements. (p. 91)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CITS F203</td>
<td>Information Technology Support Fundamentals</td>
<td></td>
</tr>
<tr>
<td>CITS F204</td>
<td>Introduction to Network Support and Administration</td>
<td></td>
</tr>
<tr>
<td>CITS F212</td>
<td>Server Operating Systems</td>
<td></td>
</tr>
<tr>
<td>CITS F261</td>
<td>Computer and Network Security</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 21-22
Select 8-9 credits from the following or program coordinator-approved courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIOS F128</td>
<td>Microcomputer Operating Systems</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>
<tr>
<td>CIOS F189</td>
<td>Microcomputer Applications: Topics</td>
</tr>
<tr>
<td>CIOS F233</td>
<td>Desktop Publishing</td>
</tr>
<tr>
<td>CIOS F240</td>
<td>Microcomputer Databases</td>
</tr>
<tr>
<td>CIOS F255</td>
<td>Digital Graphics</td>
</tr>
<tr>
<td>CIOS F258</td>
<td>Digital Photography</td>
</tr>
<tr>
<td>CITS F201</td>
<td>Microcomputer Operating Systems Support</td>
</tr>
<tr>
<td>CITS F219</td>
<td>Microcomputer Operating Systems: Topics</td>
</tr>
<tr>
<td>CITS F220</td>
<td>Implementing Internet Tools and Technologies</td>
</tr>
<tr>
<td>CITS F221</td>
<td>Graphics and Multimedia for the Web</td>
</tr>
<tr>
<td>CITS F222</td>
<td>Website Design</td>
</tr>
<tr>
<td>CITS F240</td>
<td>System and Network Services Administration</td>
</tr>
<tr>
<td>CITS F241</td>
<td>Networking and LAN Infrastructure Basics</td>
</tr>
<tr>
<td>CITS F242</td>
<td>Routing and Switching Essentials</td>
</tr>
<tr>
<td>CITS F262</td>
<td>Cybersecurity Defense and Countermeasures</td>
</tr>
<tr>
<td>CITS F263</td>
<td>Network Security Penetration Testing</td>
</tr>
<tr>
<td>CITS F265</td>
<td>Directory Services Administration</td>
</tr>
<tr>
<td>CITS F282</td>
<td>IT Troubleshooting Skills</td>
</tr>
<tr>
<td>CITS F289</td>
<td>Information Technology: Topics</td>
</tr>
</tbody>
</table>

Pass a certification review requiring students to demonstrate proficiency in the following skill areas: operating systems, hardware, and network support and troubleshooting. ²

Total Credits: 21-22

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

Certificate, Instrumentation Technology

Minimum Requirements for Certificate: 32 credits

Students must earn a C grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 89)

Certificate Requirements

Complete the certificate requirements. (p. 91)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELT F101</td>
<td>Basic Electronics: DC Physics</td>
<td>4</td>
</tr>
<tr>
<td>ELT F102</td>
<td>Basic Electronics: AC Physics</td>
<td>4</td>
</tr>
<tr>
<td>ELT F246</td>
<td>Electronic Industrial Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>PRT F140</td>
<td>Industrial Process Instrumentation I</td>
<td>3</td>
</tr>
<tr>
<td>PRT F144</td>
<td>Industrial Process Instrumentation II</td>
<td>3</td>
</tr>
<tr>
<td>PRT F240</td>
<td>Industrial Process Instrumentation III</td>
<td>3</td>
</tr>
<tr>
<td>PRT F248</td>
<td>Valve Maintenance and Instrumentation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 23

Interdisciplinary Studies

Office of Interdisciplinary Programs
907-474-7716
www.uaf.edu/gradsch/classes/interdisciplinary-program/ (http://www.uaf.edu/gradsch/classes/interdisciplinary-program/)

A.A.S. Degree

Minimum Requirements for Degree: 60 credits

The interdisciplinary program provides flexibility to undergraduate and graduate students who have well-defined goals that do not fit into one of the established majors offered by the university. Interdisciplinary studies, both graduate and undergraduate programs, 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 907-474-7716 or see www.uaf.edu/gradsch/classes/interdisciplinary-program/.

Minimum Requirements for Degree: 60 credits

1. Contact the UAF Office of the Graduate School and Interdisciplinary Programs for materials and procedures.
2. Contact three faculty members to serve as the interdisciplinary studies committee.
4. Conduct committee meeting to finalize degree proposal, title of degree and assessment plan.
5. Submit proposal to appropriate dean for approval.
6. Submit to the vice provost for final approval.

Native Language Education
College of Liberal Arts
Alaska Native Languages Program
907-474-7874
www.uaf.edu/anlc/classes/ (http://www.uaf.edu/anlc/classes)

Certificate; A.A.S. Degree
Minimum Requirements for Certificate: 30 credits; for Degree: 60 credits

The Native language education program trains teachers of Native language and culture, providing course work in Athabascan, Inupiaq 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. 127)

Certificate
• Native Language Education (p. 128)

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.

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Concentrations
Select one from the following concentrations: 27-30

Athabascan

Inupiaq

Central Yup’ik

Total Credits 27-30

Concentrations

ATHABASCAN
Candidates must demonstrate proficiency or complete a two-semester sequence in the language of the degree.

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F108</td>
<td>Beginning Athabascan Literacy</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>ED F299</td>
<td>Practicum in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 30

INUPIAQ ESKIMO
Candidates must demonstrate proficiency or complete a two-semester sequence in the language of the degree.

Major Requirements
Complete 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</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>
<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>6</td>
</tr>
<tr>
<td>ESK F118</td>
<td>Inupiaq Orthography</td>
<td>3</td>
</tr>
<tr>
<td>ESK F218</td>
<td>Inupiaq Composition</td>
<td>3</td>
</tr>
<tr>
<td>Eskimo linguistics elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 30

CENTRAL YUP’IK ESKIMO
Demonstrate advanced oral/aural proficiency in Yup’ik.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESK F109</td>
<td>Central Yup’ik Orthography</td>
<td>3</td>
</tr>
<tr>
<td>ESK F208</td>
<td>Yup’ik Composition</td>
<td>3</td>
</tr>
<tr>
<td>ESK F250</td>
<td>Yup’ik Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>ESK 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></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>

Total Credits 27

See Alaska Native Languages (p. 151).
Certificate, Native Language Education

Concentrations: Athabascan, Inupiaq Eskimo, Central Yup’ik Eskimo

Minimum Requirements for Certificate: 30 credits

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

Concentrations
Select one from the following concentrations:

- Athabascan
- Inupiaq Eskimo
- Central Yup’ik Eskimo

Total Credits: 30

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.

Program Requirements

<table>
<thead>
<tr>
<th>Course</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 F199</td>
<td>Practicum in Native Language Education</td>
<td>6</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>
<tr>
<td>ED F299</td>
<td>Practicum in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 30

INUPIAQ ESKIMO
Candidates must demonstrate proficiency or complete a two-semester sequence in the language of the degree.

Program Requirements

Complete 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F199</td>
<td>Practicum in Native Language Education</td>
<td>6</td>
</tr>
<tr>
<td>ANL F256</td>
<td>Introduction to Alaska Native Languages: History, Status and Maintenance</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 30

CENTRAL YUP’IK ESKIMO
Demonstrate advanced oral/aural proficiency in Yup’ik.

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESK F109</td>
<td>Central Yup’ik Orthography</td>
<td>3</td>
</tr>
<tr>
<td>ESK F130</td>
<td>Beginning Yup’ik Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ESK F208</td>
<td>Yup’ik Composition</td>
<td>3</td>
</tr>
<tr>
<td>ESK F250</td>
<td>Yup’ik Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>ESK 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>

Total Credits: 30

Paralegal Studies

College of Rural and Community Development
Community and Technical College
907-455-2835
www.ctc.uaf.edu/programs/paralegal/ (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. 129)

Minor
- Minor, Paralegal Studies (p. 129)

A.A.S., Paralegal Studies

1. Complete ENGL F111X with a grade of C or better prior to admission to the program.

Minimum Requirements for Degree: 61 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS F102</td>
<td>Introduction to Paralegal Studies</td>
<td>3</td>
</tr>
<tr>
<td>PLS F105</td>
<td>Introduction to Paralegal Ethics</td>
<td>2</td>
</tr>
<tr>
<td>PLS F201</td>
<td>Practical Paralegal Skills</td>
<td>3</td>
</tr>
<tr>
<td>PLS F210</td>
<td>Civil Procedure</td>
<td>3</td>
</tr>
<tr>
<td>PLS F260</td>
<td>Computers in the Law Office</td>
<td>3</td>
</tr>
<tr>
<td>PLS F280</td>
<td>Legal Research and Writing for Paralegals</td>
<td>3</td>
</tr>
<tr>
<td>PLS F285</td>
<td>Advanced Legal Writing</td>
<td>2</td>
</tr>
<tr>
<td>PLS F299</td>
<td>Paralegal Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>PS F101</td>
<td>Introduction to American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>or JUST F110X</td>
<td>Introduction to Justice</td>
<td></td>
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<tr>
<td>Select one from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PS F303</td>
<td>Politics and the Judicial Process</td>
<td></td>
</tr>
<tr>
<td>PS F300X</td>
<td>Ethics and Society</td>
<td></td>
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<tr>
<td>JUST F300X</td>
<td>Ethics and Justice</td>
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</tbody>
</table>

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<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>
<td></td>
</tr>
<tr>
<td>JRN F413</td>
<td>Mass Media Law and Regulation</td>
<td></td>
</tr>
</tbody>
</table>

Select five from the following: 15

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PLS F203</td>
<td>Torts</td>
<td></td>
</tr>
<tr>
<td>PLS F213</td>
<td>Criminal Law for Paralegals</td>
<td></td>
</tr>
<tr>
<td>PLS F215</td>
<td>Contracts/Real Property</td>
<td></td>
</tr>
<tr>
<td>PLS F240</td>
<td>Family Law</td>
<td></td>
</tr>
<tr>
<td>PLS F242</td>
<td>Employment and Administrative Law</td>
<td></td>
</tr>
<tr>
<td>PLS F250</td>
<td>Probate Law</td>
<td></td>
</tr>
<tr>
<td>PLS F275</td>
<td>Business Organizations</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 46

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.

Minor, Paralegal Studies

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS F102</td>
<td>Introduction to Paralegal Studies</td>
<td>3</td>
</tr>
<tr>
<td>PLS electives</td>
<td>Performance based on individual course credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Total Credits 15

Paramedicine

Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/emergency/ (http://www.ctc.uaf.edu/programs/emergency)

A.A.S. Degree

Minimum Requirements for Degree: 69-73 credits

The Community and Technical College paramedic program is accredited by the Commission on Accreditation of Allied Health Education Programs upon recommendation of the Committee on Accreditation of Education Programs for EMS Professions, 1361 Park St., Clearwater, FL 33756, 727-210-2350.

The emergency medical services 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. 129)

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.

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS F170</td>
<td>EMT: Emergency Medical Technician I</td>
<td>6</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>EMS F181</td>
<td>Clinical Rotation I</td>
<td>4</td>
</tr>
<tr>
<td>EMS F183</td>
<td>Clinical Rotation II</td>
<td>4</td>
</tr>
<tr>
<td>EMS F280</td>
<td>Paramedicine I</td>
<td>12</td>
</tr>
<tr>
<td>EMS F282</td>
<td>Paramedicine II</td>
<td>12</td>
</tr>
<tr>
<td>EMS F283</td>
<td>Paramedic Internship</td>
<td>12</td>
</tr>
<tr>
<td>HLTH F114</td>
<td>Fundamentals of Anatomy and Physiology</td>
<td>4-8</td>
</tr>
<tr>
<td>or BIOL F213X</td>
<td>Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>and BIOL F214X</td>
<td>and Human Anatomy and Physiology II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 54-58

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## Piloting, Professional

**College of Rural and Community Development**

907-474-7143

**Community and Technical College**

907-455-2800

[www.ctc.uaf.edu/programs/pilot/](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. 130)

### Minor

- Minor, Aviation Technology (p. 130)

### A.A.S., Piloting, Professional

Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

### General University Requirements

Complete the general university requirements. (p. 89)

### A.A.S. Degree Requirements

Complete the A.A.S. degree requirements. (p. 95)

### Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY F100</td>
<td>Private Pilot Ground School</td>
<td>4</td>
</tr>
<tr>
<td>AVTY F102</td>
<td>Commercial Ground Instruction</td>
<td>3</td>
</tr>
<tr>
<td>AVTY F155</td>
<td>Preventive Maintenance (or AFPM advisor-approved course(s))</td>
<td>3</td>
</tr>
<tr>
<td>AVTY F200</td>
<td>Instrument Ground School</td>
<td>4</td>
</tr>
<tr>
<td>AVTY F231</td>
<td>Arctic Survival</td>
<td>3</td>
</tr>
<tr>
<td>AVTY F235</td>
<td>Elements of Weather</td>
<td>3</td>
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<tr>
<td>Elective</td>
<td>Program-approved major specialty electives</td>
<td>10</td>
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</table>

Total Credits: 45

---

### Minor, Aviation Technology

Minimum Requirements for Minor: 16 credits

### Foundation Course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY F100</td>
<td>Private Pilot Ground School</td>
<td>4</td>
</tr>
</tbody>
</table>

### Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY F155</td>
<td>Preventive Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>AVTY F231</td>
<td>Arctic Survival</td>
<td>3</td>
</tr>
<tr>
<td>AVTY F235</td>
<td>Elements of Weather</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Program-approved major specialty electives</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 16

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## Process Technology

**Community and Technical College**

907-455-2800

[www.ctc.uaf.edu/programs/protech/](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. 130)

### A.A.S., Process Technology

Minimum Requirements for Degree: 63 credits

Students must earn a C grade or better in each course.

### General University Requirements

Complete the general university requirements. (p. 89)

### A.A.S. Degree Requirements

Complete the A.A.S. degree requirements. (p. 95)
Demonstrate competence in computer technology skills (through the process technology program assessment) or select one from the following:

- DRT F110  Computer Literacy for Technicians
- CIS F150  Computer Business Applications
- A program advisor-approved computer applications course

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F115X</td>
<td>Physical Sciences and Chemistry in Complex Systems (or 8 credits of program advisor-approved natural science courses)</td>
<td>8</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 F130</td>
<td>Process Technology I: Equipment</td>
<td>4</td>
</tr>
<tr>
<td>PRT F140</td>
<td>Industrial Process Instrumentation I</td>
<td>3</td>
</tr>
<tr>
<td>PRT F144</td>
<td>Industrial Process Instrumentation II</td>
<td>3</td>
</tr>
<tr>
<td>PRT F230</td>
<td>Process Technology II: Systems</td>
<td>4</td>
</tr>
<tr>
<td>PRT F231</td>
<td>Process Technology III: Operations</td>
<td>4</td>
</tr>
<tr>
<td>PRT F250</td>
<td>Process Troubleshooting</td>
<td>3</td>
</tr>
<tr>
<td>PRT F255</td>
<td>Quality Concepts for the Process Industry</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits**: 33

**Major elective credits**: 9

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.

**Certificate**

- Rural Human Services (p. 131)

**Certificate, Rural Human Services**

- Minimum Requirements for Certificate: 32 credits

**General University Requirements**

Complete the general university requirements. (p. 89)

**Certificate Requirements**

Complete the certificate requirements. (p. 91)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 F220</td>
<td>Family Systems II</td>
<td>2</td>
</tr>
<tr>
<td>RHS F250</td>
<td>Rural Counseling II</td>
<td>2</td>
</tr>
<tr>
<td>RHS F260</td>
<td>Addictions: Intervention and Treatment</td>
<td>2</td>
</tr>
<tr>
<td>RHS F265</td>
<td>Interpersonal Violence</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>
<tr>
<td>RHS F287</td>
<td>Rural Human Services Practicum</td>
<td>4</td>
</tr>
<tr>
<td>RHS F290</td>
<td>Grief and Healing</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits**: 25

1 As part of the certificate requirements, complete RHS F110 and RHS F115 for the human relations requirement. The communication and computation courses must be completed from the certificate requirements.

2 The Alcohol and Drug Abuse Certification review board has approved these courses toward certification or recertification of substance abuse counselors in the State of Alaska.

**Note**: Students spend time in intensive study at selected delivery sites.

**Safety, Health and Environmental Awareness Technology**

College of Rural and Community Development
Community and Technical College
907-479-2436
www.ctc.uaf.edu/osh/ (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 active members of the American Society of Safety Engineers.

Certificate

• Safety, Health, and Environmental Awareness Technology (p. 132)

Certificate, Safety, Health and Environmental Awareness Technology

Minimum Requirements for Certificate: 37 credits

Students must earn a C grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>OSH F108</td>
<td>Injury Prevention and Risk Management</td>
<td>4</td>
</tr>
<tr>
<td>OSH F110</td>
<td>Program Assessments, Development and Implementation</td>
<td>4</td>
</tr>
<tr>
<td>OSH F120</td>
<td>Safety Program Management and Recordkeeping</td>
<td>3</td>
</tr>
<tr>
<td>OSH F180</td>
<td>Introduction to Industrial Hygiene</td>
<td>4</td>
</tr>
<tr>
<td>OSH F201</td>
<td>Workplace Injury and Incident Evaluations</td>
<td>4</td>
</tr>
<tr>
<td>OSH F250</td>
<td>Hazardous Material Operation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 28

Tribal Management

College of Rural and Community Development
907-474-7143
http://www.uaf.edu/iac/programs/

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 specialize their education to target 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 that target their employment based needs and are encouraged to specialize their education to a specific area of study, or take courses from multiple areas of study.

Students entering either the certificate or A.A.S. degree program will meet with a faculty advisor to discuss program content, requirements and planning.

Degree

• A.A.S., Tribal Management (p. 132)

Certificate

• Tribal Management (p. 134)

A.A.S., Tribal Management

Minimum Requirements for A.A.S. Degree: 60 credits

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>TM F105</td>
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Select 27 credits from the following: ¹

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<td>NRM F204</td>
<td>Public Lands Law and Policy</td>
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<tr>
<td>RD F280</td>
<td>Resource Management Research Techniques</td>
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¹ Environmental and Natural Resource Management

Total Credits: 57
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<td>TM F225</td>
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<td>HUMS F120</td>
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<td>Substance Abuse and the Family</td>
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<td>Financial Management for Utilities</td>
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<td>Personnel Management for Utilities</td>
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<tr>
<td>RD F268</td>
<td>Rural Tourism: Planning and Principles</td>
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<td>RD F351</td>
<td>Strategic Planning for Rural Communities</td>
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<td>Transportation Improvement Programs and Control Schedules</td>
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<td>TM F274</td>
<td>Road Inventory Field Data System</td>
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</table>
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

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91)

Program Requirements

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**General University Requirements**

- Complete the general university requirements. (p. 89)

**Certificate Requirements**

- Complete the certificate requirements. (p. 91)

**Program Requirements**

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<td><strong>Community Health and Wellness</strong></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.

Yup’ik Language Proficiency

Alaska Native Languages Program
907-474-7874
College of Community and Rural Development
907-474-7143
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. 135)

Certificate

• Yup’ik Language Proficiency (p. 135)

A.A.S., Yup’ik Language Proficiency

Minimum Requirements for Degree: 60 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 89)

A.A.S. Degree Requirements
Complete the A.A.S. degree requirements. (p. 95)

Program Requirements

<table>
<thead>
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<td>Introduction to Reading and Writing Yup’ik</td>
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Select one from the following sequences: 9

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<td>ESK F205 and ESK F206 and ESK F207</td>
<td>Regaining Fluency in Yup’ik and Regaining Fluency in Yup’ik II and Intermediate Central Yup’ik Apprenticeship III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits

30

Certificate, Yup’ik Language Proficiency

Minimum Requirements for Certificate: 30 credits

General University Requirements
Complete the general university requirements. (p. 89)

Certificate Requirements
Complete the certificate requirements. (p. 91) 1

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESK F208</td>
<td>Yup’ik Composition</td>
<td>3</td>
</tr>
<tr>
<td>ESK F130</td>
<td>Beginning Yup’ik Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ESK F240</td>
<td>Introduction to Reading and Writing Yup’ik</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following sequences: 12

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESK F121 and ESK F122 and ESK F123</td>
<td>Elementary Central Yup’ik Apprenticeship I and Elementary Central Yup’ik Apprenticeship II and Elementary Central Yup’ik Apprenticeship III</td>
<td>3</td>
</tr>
<tr>
<td>ESK F103 and ESK F104 and ESK F203 and ESK F204</td>
<td>Conversational Central Yup’ik and Conversational Central Yup’ik and Conversational Central Yup’ik III and Conversational Central Yup’ik IV</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following sequences: 9

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESK F221 and ESK F222 and ESK F223</td>
<td>Intermediate Central Yup’ik Apprenticeship I and Intermediate Central Yup’ik Apprenticeship II and Intermediate Central Yup’ik Apprenticeship III</td>
<td>3</td>
</tr>
<tr>
<td>ESK F205 and ESK F206 and ESK F207</td>
<td>Regaining Fluency in Yup’ik and Regaining Fluency in Yup’ik II and Intermediate Central Yup’ik Apprenticeship III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits

30

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.
BACHELOR’S DEGREES

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. 141) 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 ENGL F211X and ENGL F213X are writing courses, either will satisfy the second half of the requirement in written communication for the bachelor’s degree. But you can’t enroll in ENGL F211X or ENGL F213X without first fulfilling the ENGL F111X requirement. (See Local Advanced Placement Credit — English (p. 32.).)

General University Requirements for Baccalaureate Degrees

<table>
<thead>
<tr>
<th>Minimum number of credits</th>
<th>120 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credits earned at UAF (residence credit)</td>
<td>30 credits</td>
</tr>
<tr>
<td>Upper-division credit (courses with numbers between F300 and F499)</td>
<td>39 credits total (some degrees require more); 24 of the 39 must be earned at UA and 15 at UAF</td>
</tr>
<tr>
<td>Additional UAF credit that must be earned by transfer students</td>
<td>12 credits in the major; 3 credits in the minor</td>
</tr>
<tr>
<td>Grade point average</td>
<td>2.0 cumulative and 2.0 in both the major and minor</td>
</tr>
</tbody>
</table>

Minimum grades for major

<table>
<thead>
<tr>
<th>No grade lower than C- in courses required for major. Some majors require higher GPA's for major course work.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog year that can be used to determine requirements</td>
</tr>
<tr>
<td>Second degree</td>
</tr>
</tbody>
</table>

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.

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. 26.).)

- Changing Your Major

  Undergraduate students may change majors by completing a change of major form available from the Office of Admissions and the Registrar or online at the registrar website. A change of major becomes effective after it is processed by the Office of Admissions and the Registrar. Graduating seniors must have change of majors submitted with their graduation application to be considered in that program.

CONCENTRATIONS

A concentration is an area of emphasis including the program requirement 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 Fine Arts, Bachelor of Applied Arts and Sciences, Bachelor of Science, Bachelor of Business Administration, Bachelor of Music and Bachelor of Emergency Management 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 Admissions and 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>
<tr>
<td>Catalog year</td>
<td>A single catalog is followed for both majors to meet requirements.</td>
<td>Different catalogs may be followed to meet requirements for each degree.</td>
</tr>
<tr>
<td>General university requirements and major requirements</td>
<td>All general university requirements and all major requirements for both majors must be met.</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

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.

At least 24 semester credit hours beyond the total required for the first degree must be completed before an additional degree can be awarded.

RESIDENCY 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 Admissions and the Registrar or online at the registrar website. Forms need to be returned to the Office of Admissions and the Registrar with required signatures of approval. The Office of Admissions and the Registrar will notify you once the appropriate person or committee has made a decision about whether to approve your petition. Academic petitions fall into three categories and each involves different processes:

- **General Education Requirements Petitions**
  If your petition deals with baccalaureate general education 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 Admissions and the Registrar. It will then be forwarded to the chair of the Faculty Senate 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 Admissions and 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 Admissions and 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 Admissions and 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 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 Admissions and 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. 52).) 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 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 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 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 Emergency Management
  The B.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 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 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’s Degree Requirements

THE GENERAL EDUCATION REQUIREMENTS

For a summary of the general education requirements see the general education requirements (p. 139) 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 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.

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.
   • Competence will be demonstrated for the foundational information in each subject area, its context and significance, and the methods used in advancing each.

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.
   • Proficiency will be demonstrated across the curriculum through critical analysis of proffered information, well-reasoned solutions to problems or inferences drawn from evidence, effective written and oral communication, and satisfactory outcomes of group projects.

3. Acquire tools for effective civic engagement in local through global contexts, including ethical reasoning, intercultural competence, and knowledge of Alaska and Alaska issues.
   • Facility will be demonstrated through analyses of issues including dimensions of ethics, human and cultural diversity, conflicts and interdependencies, globalization and sustainability.

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.
   • Preparation will be demonstrated through production of a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation and reflection.

Courses that satisfy the GER have course numbers ending with X. For example, English F111X and Communication F141X meet specific GER communication requirements. Credit may be counted toward general education requirements or a degree major requirement, but not both. 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

Refer to tables below for specific courses.

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication (p. 139)</td>
<td>9</td>
</tr>
<tr>
<td>Library and Information Research (p. 139)</td>
<td>0-1</td>
</tr>
<tr>
<td>Arts (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td>Humanities (p. 140)</td>
<td>3-5</td>
</tr>
<tr>
<td>Social Sciences (p. 140)</td>
<td>6</td>
</tr>
<tr>
<td>Additional Arts/Humanities/Social Sciences (p. 140)</td>
<td>3-5</td>
</tr>
<tr>
<td>Ethics (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics (p. 141)</td>
<td>3-4</td>
</tr>
<tr>
<td>Natural Sciences (p. 141)</td>
<td>8</td>
</tr>
<tr>
<td>Upper-Division W- and O-Intensive (p. 141)</td>
<td>varies</td>
</tr>
<tr>
<td>Total Credits</td>
<td>38-44</td>
</tr>
</tbody>
</table>

Course Requirements

COMMUNICATION

Complete the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F111X</td>
<td>Introduction to Academic Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F211X</td>
<td>Academic Writing about Literature</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL F213X</td>
<td>Academic Writing about the Social and Natural Sciences</td>
<td></td>
</tr>
<tr>
<td>COMM F121X</td>
<td>Introduction to Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>or COMM F131X</td>
<td>Fundamentals of Oral Communication: Group Context</td>
<td></td>
</tr>
<tr>
<td>or COMM F141X</td>
<td>Fundamentals of Oral Communication: Public Context</td>
<td></td>
</tr>
</tbody>
</table>

LIBRARY AND INFORMATION RESEARCH

Complete one of the following prior to junior standing: 0-1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS F101X</td>
<td>Library Information and Research</td>
</tr>
</tbody>
</table>

Or successful completion of library skills competency exam
## General Education Requirements

### Arts
Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</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/NORS 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/JRN F217X</td>
<td>Introduction to the Study of Film</td>
</tr>
<tr>
<td>FLPA/JRN F105X</td>
<td>History of the Cinema</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>Exploration in Music</td>
</tr>
</tbody>
</table>

### Humanities
Select one from the following: 3-5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</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>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>ASLG F101X</td>
<td>American Sign Language I</td>
</tr>
<tr>
<td>ASLG F202X</td>
<td>American Sign Language II</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>ESK F101X</td>
<td>Elementary Central Yup’ik</td>
</tr>
<tr>
<td>ESK F102X</td>
<td>Elementary Central Yup’ik</td>
</tr>
<tr>
<td>ESK F111X</td>
<td>Elementary Inupiaq</td>
</tr>
<tr>
<td>ESK F112X</td>
<td>Elementary Inupiaq</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>JPN F101X</td>
<td>Elementary Japanese I</td>
</tr>
<tr>
<td>JPN F102X</td>
<td>Elementary Japanese II</td>
</tr>
<tr>
<td>JRN F101X</td>
<td>Media and Culture</td>
</tr>
<tr>
<td>JRN F102X</td>
<td>Introduction to Broadcasting</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>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>
<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>
</tbody>
</table>

### Social Sciences
Select two from the following in two different disciplines: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</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>COMM F180X</td>
<td>Introduction to Human Communication</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>JUST F110X</td>
<td>Introduction to Justice</td>
</tr>
<tr>
<td>PS F100X</td>
<td>Political Economy</td>
</tr>
<tr>
<td>PS F201X</td>
<td>Comparative 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>SWK F103X</td>
<td>Introduction to Social Work</td>
</tr>
<tr>
<td>SOC F100X</td>
<td>Individual, Society and Culture</td>
</tr>
<tr>
<td>SOC F201X</td>
<td>Social Problems</td>
</tr>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women’s and Gender Studies</td>
</tr>
</tbody>
</table>

### Additional Arts/Humanities/Social Sciences
Complete one additional course from the arts, humanities or social sciences courses listed above: 3-5

### Ethics
Select one from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F323X</td>
<td>Business Ethics</td>
</tr>
<tr>
<td>COMM F300X</td>
<td>Communicating Ethics</td>
</tr>
<tr>
<td>JUST F300X</td>
<td>Ethics and Justice</td>
</tr>
<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions</td>
</tr>
<tr>
<td>PHIL F322X</td>
<td>Ethics</td>
</tr>
<tr>
<td>PS F300X</td>
<td>Ethics and Society</td>
</tr>
</tbody>
</table>
MATHEMATICS
Select one from the following: 3-4
MATH F113X Concepts and Contemporary Applications of Mathematics
MATH F122X Precalculus for Business and Economics
MATH F151X College Algebra for Calculus
MATH F152X Trigonometry
MATH F156X Precalculus
MATH F230X Calculus Essentials with Applications 1
MATH F251X Calculus I 1
MATH F252X Calculus II 1
MATH F253X Calculus III 1
STAT F200X Elementary Probability and Statistics

NATURAL SCIENCES
Select two from the following: 8
ATM F101X Weather and Climate of Alaska
BIOL F100X Human Biology
BIOL F103X Biology and Society
BIOL F104X Natural History of Alaska
BIOL F115X Fundamentals of Biology I
BIOL F116X Fundamentals of Biology II
BIOL F120X Introduction to Human Nutrition
BIOL F213X Human Anatomy and Physiology I
BIOL F214X Human Anatomy and Physiology II
CHEM F100X Chemistry in Complex Systems
CHEM F103X Basic General Chemistry
CHEM F104X Survey of Organic Chemistry and Biochemistry
CHEM F105X General Chemistry I
CHEM F106X General Chemistry II
CHEM F111X Introduction to Environmental Chemistry of the Arctic
GEOG F111X Earth and Environment: Elements of Physical Geography

GEOS F100X Introduction to Earth Science
GEOS F101X The Dynamic Earth
GEOS F106X Life in the Age of Dinosaurs
GEOS F112X The History of Earth and Life
GEOS F120X Glaciers, Earthquakes and Volcanoes: Past, Present and Future
MSL F111X The Oceans
PHYS F102X Energy and Society
PHYS F103X College Physics I
PHYS F104X College Physics II
PHYS F115X Physical Sciences
PHYS F175X Introduction to Astronomy
PHYS F211X General Physics I
PHYS F212X General Physics II
PHYS F213X Elementary Modern Physics

UPPER-DIVISION WRITING AND ORAL COMMUNICATION
Courses meeting the upper-division writing-intensive and oral-intensive communication requirements for the baccalaureate degree are identified in the course description of the catalog with the following designators:
W - Writing-Intensive Course
O or O/2 - Oral-Intensive Communication Course

Complete the following at the upper-division level:
Two writing-intensive courses designated (W)
One oral-intensive communication course designated (O) or two oral-intensive communication courses designated (O/2)
(See degree and/or major requirements.)

1 Or any math course having one of these as a prerequisite.
2 You may earn credit for MATH F151X or MATH F122X but not both.
3 You may earn credit for MATH F251X or MATH F230X but not both.

Summary of Bachelor's Degree Requirements
General education requirements must be completed by all students. Additionally, 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. 150)

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>Communication</td>
<td>ENGL F111X, ENGL F211X or ENGL F213X, COMM F121X, COMM F131X or COMM F141X</td>
<td>2 courses designated upper-division writing-intensive (W) and either 1 designated upper-division oral-intensive (O) course or 2 upper-division oral-intensive courses designated O/2</td>
</tr>
</tbody>
</table>

Library and Information Research | LS F101X or successful completion of library skills competency test |
### Summary of Bachelor's Degree Requirements

#### Arts

#### Humanities

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

#### Social Sciences

See above

#### Ethics
Complete one from the following: BA F323X, COMM F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

#### Mathematics
Complete one from the following: MATH F113X, 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

One 3-credit course at F100 level or above from math, computer sciences or statistics (excluding DEVM courses)

#### Natural Sciences

No additional natural science unless required by the major or minor

#### Other
One additional Arts, Humanities or Social Sciences from the lists above.

B.F.A. general requirements are the same as the requirements for the B.A. degree except a minor is not required for the B.F.A.

#### Major Complex
At least 30 cr

#### Minor Complex
Required: at least 15 cr

#### Total Required
38-44 cr

120 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.

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 humanities, social sciences or mathematics. 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 bachelors 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 following section. See the table on Degrees and Programs At a Glance (http://catalog.uaf.edu/degrees-programs-glance) page for a list of all available degrees, including minors.
  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 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.

### BACHELOR OF EMERGENCY 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>ENGL F111X, ENGL F211X or ENGL F213X, COMM F121X, COMM F131X or COMM F141X</td>
<td>2 courses designated upper-division writing-intensive (W) and either 1 designated upper-division oral-intensive (O) course or 2 upper-division oral-intensive courses designated O/2</td>
</tr>
<tr>
<td>Library and Information Research</td>
<td>LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
<tr>
<td>Social Sciences</td>
<td>Complete two courses from the following in two different disciplines: ACCT F261X, ANS F242X, ANTH F100X, ANTH F101X, ANTH F111X, ANTH F221X, BA F151X, COMM F180X, ECE F104X, ECON F100X, ECON F201X, ECON F202X, ECON F235X, GEOG F101X, HIST F100X, HIST F102X, HIST F122X, HIST F132X, JUST F110X, PS F100X, PS F201X, PSY F101X, RD F200X, SWK F103X, SOC F100X, SOC F201X, WGS F201X</td>
<td>No additional social science unless required by major or minor</td>
</tr>
<tr>
<td>Other</td>
<td>One additional Arts, Humanities or Social Sciences from the lists above.</td>
<td></td>
</tr>
</tbody>
</table>
Summary of Bachelor's Degree Requirements

Ethics
Complete one from the following: BA F323X, COMM F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

Mathematics
Complete one from the following: MATH F113X, 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.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. 208) in Bachelor’s Degree Programs, section C.

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).

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>ENGL F111X, ENGL F211X or ENGL F213X, COMM F121X, COMM F131X or COMM F141X</td>
<td>2 courses designated upper-division writing-intensive (W) and either 1 designated upper-division oral-intensive (O) course or 2 upper-division oral-intensive courses designated O/2</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>
### 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, COMM F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

### Mathematics
Complete one from the following: MATH F113X, 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
One 3-credit course at the F100 level or above from math, computer sciences or statistics (excluding DEVX courses). A 3-credit calculus course must be included in general education requirements or B.S. requirements

### Natural Sciences
One-year sequence in one natural science beyond the general education requirements—8 cr (Total natural science courses used to meet core and B.S. requirements must represent at least two different natural sciences.)

### Major Complex
At least 30 cr

### Minor Complex
Optional: at least 15 cr

### Total Required
38-44 cr
120 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, 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 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 Admissions and 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 BUSINESS ADMINISTRATION**

<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>ENGL F111X, ENGL F211X or ENGL F213X, COMM F121X, COMM F131X or COMM F141X</td>
<td>2 courses designated upper-division writing-intensive (W) and either 1 designated upper-division oral-intensive (O) course or 2 upper-division oral-intensive courses designated O/2</td>
</tr>
<tr>
<td>Library and Information Research</td>
<td>LS F101X or successful completion of library skills competency test</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>One additional Arts, Humanities or Social Sciences from the lists above.</td>
<td></td>
</tr>
<tr>
<td>Ethics</td>
<td>BA F323X</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>MATH F230X</td>
<td>MATH F122X (MATH F230X must be taken to meet the general education requirements.)</td>
</tr>
</tbody>
</table>
**Natural Sciences**


No additional natural science required

<table>
<thead>
<tr>
<th>Common Body of Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIS F101, ACCT F261X, ACCT F262, AIS F310 or AIS F316, BA F325, BA F330, BA F343, BA F360, BA F390, BA F462, ECON F324 or ECON F350, HSEM F445.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 24-33 cr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minor Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional: at least 15 cr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>38-44 cr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
</tr>
<tr>
<td>120 cr</td>
</tr>
</tbody>
</table>

All majors must earn a C- grade or higher in the general education requirements, common body of knowledge courses, department and major-specific requirements, minor requirements 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.

**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>Communication</td>
<td>ENGL F111X, ENGL F211X or ENGL F213X, COMM F121X, COMM F131X or COMM F141X</td>
<td>2 courses designated upper-division writing-intensive (W) and either 1 designated upper-division oral-intensive (O) course or 2 upper-division oral-intensive courses designated O/2</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>
Summary of Bachelor's Degree Requirements

Social Sciences
No additional social sciences unless required by the major

Ethics
Complete one from the following: BA F323X, COMM F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X

Mathematics
Complete one from the following: MATH F113X, 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

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.

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 | General Education Requirements | Degree Specific Requirements
--- | --- | ---
Communication | ENGL F111X, ENGL F211X or ENGL F213X, COMM F121X, COMM F131X or COMM F141X | 2 courses designated upper-division writing-intensive (W) and either 1 designated upper-division oral-intensive (O) course or 2 upper-division oral-intensive courses designated O/2
Library and Information Research | LS F101X or successful completion of library skills competency test |
| **Social Sciences** | Complete two courses from the following in two different disciplines: ACCT F261X, ANS F242X, ANTH F100X, ANTH F101X, ANTH F111X, ANTH F211X, BA F151X, COMM F180X, ECE F104X, ECON F100X, ECON F201X, ECON F202X, ECON F235X, GEOG F101X, HIST F100X, HIST F102X, HIST F122X, HIST F132X, JUST F110X, PS F100X, PS F201X, PSY F101X, RD F200X, SWK F103X, SOC F100X, SOC F201X, WGS F201X | No additional social sciences unless required by major or minor |
| **Other** | One additional Arts, Humanities or Social Sciences from the lists above. | Computer competency (any computer science or computer applications course)–3 cr and TTCH F301 |
| **Ethics** | Complete one from the following: BA F323X, COMM F300X, JUST F300X, NRM F303X, PHIL F322X, PS F300X |
| **Mathematics** | MATH F122X | One 3-credit course at the F100 level or above from math, computer sciences or statistics (MATH F122X must be taken to meet the general education math requirement) |
| **Natural Sciences** | Complete two from the following: ATM F101X, BIOL F100X, BIOL F103X, BIOL F104X, BIOL F115X, BIOL F116X, BIOL F120X, BIOL F213X, BIOL F214X, CHEM F100X, CHEM F103X, CHEM F104X, CHEM F105X, CHEM F106X, CHEM F111X, GEOG F101X, GEOG F111X, GEOS F100X, GEOS F101X, GEOS F106X, GEOS F112X, GEOS F120X, MSL F111X, PHYS F102X, PHYS F103X, PHYS F104X, PHYS F115X, PHYS F175X, PHYS F211X, PHYS F212X, PHYS F213X | 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** | 38-44 cr | 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).
Bachelor's Degree Programs

Accounting

School of Management
Department of Accounting and Information Systems
907-474-7461
www.uaf.edu/som/degrees/undergraduate/acct/ (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. The AACSB accredits 120 programs nationwide, and the UAF accounting program is the only program in Alaska with 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. 150)

Minor

• Minor, Accounting (p. 150)

B.B.A., Accounting

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)
As part of the general education requirements, complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F323X</td>
<td>Business Ethics</td>
<td>3</td>
</tr>
<tr>
<td>MATH F230X</td>
<td>Calculus Essentials with Applications</td>
<td>3</td>
</tr>
</tbody>
</table>

B.B.A. Degree Requirements

Complete the B.B.A. degree requirements. (p. 146)

Common Body of Knowledge

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIS F316</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F314</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>or BA F456</td>
<td>Small Business Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<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 F401</td>
<td>Advanced 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>3</td>
</tr>
</tbody>
</table>

Select three from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F404</td>
<td>Advanced Cost Accounting and Controllship</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F414</td>
<td>Governmental and Nonprofit Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F430</td>
<td>Advanced Taxes</td>
<td>3</td>
</tr>
<tr>
<td>ACCT F472</td>
<td>Internal and Government Auditing</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Free electives as needed to meet 120 credits

Total Credits 39

1 As part of the Common Body of Knowledge (p. 146), 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.

Minor, Accounting

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</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>Upper-division accounting electives</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 15

Note: Courses completed to satisfy this minor can be used to simultaneously satisfy other major or general distribution requirements.

Aerospace Engineering

College of Engineering and Mines
907-474-6098
www.uaf.edu/cem/ (http://www.uaf.edu/cem)

Minor Only

Minor

• Minor, Aerospace Engineering (p. 150)

Minor, Aerospace Engineering

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</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>Select three from the following:</td>
<td>9-11</td>
<td></td>
</tr>
<tr>
<td>EE F434</td>
<td>Instrumentation Systems</td>
<td></td>
</tr>
<tr>
<td>EE F444</td>
<td>Embedded Systems Design</td>
<td></td>
</tr>
<tr>
<td>EE F471</td>
<td>Fundamentals of Automatic Control</td>
<td></td>
</tr>
</tbody>
</table>
or ME F409 Controls
GEOS F422 Geoscience Applications of Remote Sensing
ME F408 Mechanical Vibrations
ME F450 Theory of Flight
ME F453 Propulsion Systems
Total Credits 15-17

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
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, Alutiq, 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. 151)

Minor, Alaska Native Languages

Minimum Requirements for Minor: 15 credits

Any ANL or ESK courses 15
Total Credits 15

Alaska Native Studies

College of Rural and Community Development
Department of Alaska Native Studies and Rural Development
907-474-5405

www.uaf.edu/danrd/ (http://www.uaf.edu/danrd)

B.A. Degree

Minimum Requirements for Degree: 120 credits

Alaska Native studies provides students with an awareness of the scope, richness and variety of Alaska Native cultures. It offers a series of critical perspectives on the contemporary Native experience in North American society. The B.A. degree can be earned on the Fairbanks campus or through distance delivery.

Students complete a concentration in one of four areas:

• Alaska Native Forms of Cultural Expression
• Alaska Native Education
• Alaska Native Language
• Alaska Native Law, Government and Politics

The Alaska Native studies B.A. prepares students to appreciate historical and contemporary cultural dynamics. The department also welcomes students pursuing a second major or a minor. It encourages students who expect to be involved professionally in Alaska Native communities or other multicultural settings to pursue this degree.

Students applying for acceptance into the Alaska Native Studies program need to complete two department-specific requirements in addition to general university admission: an oral interview with faculty and a written questionnaire. Findings from this process will be used to support the department advising process and assist students in connecting with faculty and mentors. The questionnaire and instructions for the oral interview are on the DANSRD website under “How to Apply.”

Special application requirements and deadlines apply for distance B.A. programs. For more information contact the department toll-free at 800-770-9531 or visit www.uaf.edu/danrd/ (http://www.uaf.edu/danrd).

Degree

• B.A., Alaska Native Studies (p. 151)

Minor

• Minor, Alaska Native Studies (p. 153)

B.A., Alaska Native Studies

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)
Upper Division Credits 1 39

Program Requirements

<table>
<thead>
<tr>
<th>Course</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 or ANTH F242</td>
<td>Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS F310</td>
<td>Indigenous Land Settlements</td>
<td>3</td>
</tr>
</tbody>
</table>
### ANS F350
Cross-Cultural Communication: Alaska Perspectives 3

### ANS F375
Native American Religion and Philosophy 3

### ANS F401
Cultural Knowledge of Native Elders 3

### RD F350
Community Research in Indigenous Contexts 3

### ANS F478
Alaska Native Studies Senior Thesis 2 3

Select 9 ANS/RD/TM elective credits 9

### Concentrations
Select 21 credits in one from the following concentrations 21

#### ALASKA NATIVE EDUCATION

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

  *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 general education requirements and concentration area may be double counted for the minor.*

#### ALASKA NATIVE FORMS OF CULTURAL EXPRESSION

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

#### ALASKA NATIVE LANGUAGE

(Not available at all campus locations)

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

### Total Credits
93

**Concentrations**

These are recommended courses. Course substitutions may be made with approval of the faculty advisor.

**ALASKA NATIVE EDUCATION**

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

**ALASKA NATIVE FORMS OF CULTURAL EXPRESSION**

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

**ALASKA NATIVE LANGUAGE**

(Not available at all campus locations)

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

- **RD F470/F670**
  - The Alaska Native Claims Settlement Act: Pre-1971 to Present 3

- **ANS F300**
  - Language and Culture in Alaska 3

- **ANS/ANTH F320**
  - Language and Culture in Alaska 3

- **ANS/ENGL F340**
  - Contemporary Native American Literature 3

- **ANS F348**
  - Voices of Native American Peoples 3

- **ANS F349**
  - Narrative Art of Alaska Native Peoples (in English Translation) 3

- **ANS F351**
  - Practicum in Native Cultural Expression 1-3

- **ANS F355X**
  - Introduction to Alaska Native Languages 3

- **ANS F360**
  - Advanced Native Dance 1

- **ANS F361**
  - Advanced Alaska Native Performance 3

- **ANS F365**
  - Native Art of Alaska 3

- **ANS F381**
  - Alaska Natives in Film 3

- **ANS F461**
  - Native Ways of Knowing 3

- **RD F265**
  - Perspectives on Subsistence in Alaska 3

- **RD F470/F670**
  - The Alaska Native Claims Settlement Act: Pre-1971 to Present 3

**Concentrations**

These are recommended courses. Course substitutions may be made with approval of the faculty advisor.

**ALASKA NATIVE EDUCATION**

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

**ALASKA NATIVE FORMS OF CULTURAL EXPRESSION**

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

**ALASKA NATIVE LANGUAGE**

(Not available at all campus locations)

- **Program Requirements**
  - **Course Name**
  - **Credit Hours**

- **RD F470/F670**
  - The Alaska Native Claims Settlement Act: Pre-1971 to Present 3
**ANS F300**  
Alaska Native Writers Workshop

**ANS/ANTH F320**  
Language and Culture in Alaska

**ANS F461**  
Native Ways of Knowing

### ALASKA NATIVE LAW, GOVERNMENT AND POLITICS

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F111</td>
<td>History of Alaska Natives</td>
<td>3</td>
</tr>
<tr>
<td>ANS F250</td>
<td>Current Alaska Native Leadership Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>ANS/RD F315</td>
<td>Tribal People and Development</td>
<td>3</td>
</tr>
<tr>
<td>ANS/ANTH F320</td>
<td>Language and Culture in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS/PS F325</td>
<td>Native Self-Government</td>
<td>3</td>
</tr>
<tr>
<td>ANS F348</td>
<td>Native North American Women</td>
<td>3</td>
</tr>
<tr>
<td>ANS/PS F425</td>
<td>Federal Indian Law and Alaska Natives</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 F475</td>
<td>Alaska Native Social Change</td>
<td>3</td>
</tr>
<tr>
<td>ANS F461</td>
<td>Native Ways of Knowing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F414</td>
<td>Research Writing</td>
<td>3</td>
</tr>
<tr>
<td>PLS F280</td>
<td>Legal Research and Writing for Paralegals</td>
<td>3</td>
</tr>
<tr>
<td>PS F263</td>
<td>Alaska Native Politics</td>
<td>3</td>
</tr>
<tr>
<td>RD F110</td>
<td>Alaska Native Claims Settlement Act: Land Claims in the 21st Century</td>
<td>1</td>
</tr>
<tr>
<td>RD F265</td>
<td>Perspectives on Subsistence in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>RD F300</td>
<td>Rural Development in a Global Perspective</td>
<td>3</td>
</tr>
<tr>
<td>RD F470/F670</td>
<td>The Alaska Native Claims Settlement Act: Pre-1971 to Present</td>
<td>3</td>
</tr>
<tr>
<td>TM F201</td>
<td>Tribal Government in Alaska II</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: **ANS F202X may not be counted toward an Alaska Native studies major if used to fulfill general education requirements.**

### Minor, Alaska Native Studies

All minor programs must be approved by the Alaska Native Studies and Rural Development department head.

**Minimum Requirements for Minor: 15 credits**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credits 15

### American Sign Language

**College of Rural and Community Development**  
Community and Technical College  
907-455-2808  
www.ctc.uaf.edu (http://www.ctc.uaf.edu)

**Minor Only**

The minor in American sign language provides students with an opportunity to acquire signing skills and experience American deaf culture and history. Students of ASLG will have a greater understanding of diversity and empathy for people with differing abilities. ASLG students will develop critical thinking skills and be able to sign clearly, be understood and comprehend native signers. ASLG minor students will be required to participate in community events and develop an ethical responsibility to the community in which they live. ASL is a visual language that uses physical stamina and coordination, as well as agile visual/mental processing and prolonged visual attention. There is no use of voice during the ASLG classes, therefore students must be able to sustain physically demanding activity in order to participate and learn.

### Minor

• Minor, American Sign Language (p. 153)

### Minor, American Sign Language

**Minimum Requirements for Minor: 15 credits**

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ASLG F203</td>
<td>American Sign Language III</td>
<td>3</td>
</tr>
<tr>
<td>ASLG F204</td>
<td>American Sign Language IV</td>
<td>3</td>
</tr>
<tr>
<td>ASLG F205</td>
<td>American Sign Language V</td>
<td>3</td>
</tr>
<tr>
<td>ASLG electives</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 15

**Note:** Courses designated as humanities that are taken for the minor may also be used to fulfill humanities distribution requirements for the B.A. degree.

### Anthropology

**College of Liberal Arts**  
Department of Anthropology  
907-474-7288  
www.uaf.edu/anthro/ (http://www.uaf.edu/anthro)

**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. 153)  
• B.S., Anthropology (p. 154)

### Minor

• Minor, Anthropology (p. 154)

### B.A., Anthropology
Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>General University Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 136)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Education Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general education requirements. (p. 139)</td>
</tr>
</tbody>
</table>

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F100X</td>
<td>3</td>
</tr>
<tr>
<td>Individual, Society and Culture</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B.A. Degree Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the B.A. degree requirements. (p. 141)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F211X</td>
</tr>
<tr>
<td>Fundamentals of Archaeology</td>
</tr>
<tr>
<td>or ANTH F221</td>
</tr>
<tr>
<td>Fundamentals of Biological Anthropology</td>
</tr>
<tr>
<td>ANTH F215</td>
</tr>
<tr>
<td>Fundamentals of Social/Cultural Anthropology</td>
</tr>
<tr>
<td>ANTH/LING F223</td>
</tr>
<tr>
<td>Sociolinguistics: Language and Social Inequality</td>
</tr>
<tr>
<td>ANTH F384</td>
</tr>
<tr>
<td>History of Anthropology</td>
</tr>
<tr>
<td>ANTH F411</td>
</tr>
<tr>
<td>Senior Seminar in Anthropology</td>
</tr>
</tbody>
</table>

Select six anthropology electives, at least four (12 credits) of which are at the F400 level: 18

Total Credits 36

Note: LING F101X satisfies part of the B.A. humanities requirements.

B.S., Anthropology

Minimum Requirements for Degree: 130 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>General University Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 136)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Education Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general education requirements. (p. 139)</td>
</tr>
</tbody>
</table>

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F100X</td>
<td>3</td>
</tr>
<tr>
<td>Individual, Society and Culture</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B.S. Degree Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the B.S. degree requirements. (p. 144)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F211X</td>
</tr>
<tr>
<td>Fundamentals of Archaeology</td>
</tr>
<tr>
<td>or ANTH F221</td>
</tr>
<tr>
<td>Fundamentals of Biological Anthropology</td>
</tr>
<tr>
<td>ANTH F221</td>
</tr>
<tr>
<td>Fundamentals of Biological Anthropology</td>
</tr>
<tr>
<td>ANTH F215</td>
</tr>
<tr>
<td>Fundamentals of Social/Cultural Anthropology</td>
</tr>
<tr>
<td>ANTH/LING F223</td>
</tr>
<tr>
<td>Sociolinguistics: Language and Social Inequality</td>
</tr>
<tr>
<td>ANTH F320</td>
</tr>
<tr>
<td>Language and Culture in Alaska</td>
</tr>
<tr>
<td>ANTH/LING F223</td>
</tr>
<tr>
<td>Sociolinguistics: Language and Social Inequality</td>
</tr>
<tr>
<td>ANTH F411</td>
</tr>
<tr>
<td>Senior Seminar in Anthropology</td>
</tr>
<tr>
<td>ANTH F214</td>
</tr>
<tr>
<td>World Prehistory</td>
</tr>
<tr>
<td>ANTH F405</td>
</tr>
<tr>
<td>Archaeological Method and Theory</td>
</tr>
<tr>
<td>ANTH F423</td>
</tr>
<tr>
<td>Human Origins</td>
</tr>
<tr>
<td>ANTH F424</td>
</tr>
<tr>
<td>Analytical Techniques</td>
</tr>
</tbody>
</table>

Select at least two from the following electives: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F426</td>
<td>3</td>
</tr>
<tr>
<td>Bioarchaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH F428</td>
<td>3</td>
</tr>
<tr>
<td>Ecological Anthropology and Regional Sustainability</td>
<td></td>
</tr>
<tr>
<td>ANTH F492</td>
<td>3</td>
</tr>
<tr>
<td>Seminar (Physical Anthropology)</td>
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</tr>
<tr>
<td>ANTH F492</td>
<td>3</td>
</tr>
<tr>
<td>Seminar (Archaeology)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 39-40

Note: 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>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F211X</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH F215</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Social/Cultural Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH F221</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Biological Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH/LING F223</td>
<td>3</td>
</tr>
<tr>
<td>Sociolinguistics: Language and Social Inequality</td>
<td></td>
</tr>
<tr>
<td>ANTH F384</td>
<td>3</td>
</tr>
<tr>
<td>History of Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH F411</td>
<td>3</td>
</tr>
<tr>
<td>Senior Seminar in Anthropology</td>
<td></td>
</tr>
</tbody>
</table>

Select six anthropology electives, at least four (12 credits) of which are at the F400 level: 18

Total Credits 36

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 an interdisciplinary degree program 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. Information and advising for this degree is through the Office of the Graduate School and Interdisciplinary Programs.

Degree

- B.A.A.S., Applied Arts and Sciences (p. 154)

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>General University Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 136)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F211X</td>
</tr>
<tr>
<td>Circumpolar Archaeology</td>
</tr>
<tr>
<td>or ANTH F315</td>
</tr>
<tr>
<td>Human Variation</td>
</tr>
<tr>
<td>ANTH F415</td>
</tr>
<tr>
<td>Zooarchaeology and Taphonomy</td>
</tr>
<tr>
<td>or ANTH F422</td>
</tr>
<tr>
<td>Human Osteology</td>
</tr>
</tbody>
</table>

Select at least two from the following electives: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F426</td>
<td>3</td>
</tr>
<tr>
<td>Bioarchaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH F428</td>
<td>3</td>
</tr>
<tr>
<td>Ecological Anthropology and Regional Sustainability</td>
<td></td>
</tr>
<tr>
<td>ANTH F492</td>
<td>3</td>
</tr>
<tr>
<td>Seminar (Physical Anthropology)</td>
<td></td>
</tr>
<tr>
<td>ANTH F492</td>
<td>3</td>
</tr>
<tr>
<td>Seminar (Archaeology)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 39-40

- B.S., Anthropology (p. 154)
- B.A.A.S., Applied Arts and Sciences (p. 154)
General Education Requirements
Complete the general education requirements. (p. 139)

B.A.A.S. Degree and Program Requirements
Complete the B.A.A.S. degree requirements. (p. 148)
MATH/CS/STAT elective at the F100 level or above
ENGL F314 Technical Writing

Interdisciplinary studies 1 30

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.

Total Credits 30

1 Approved by an advisory committee of at least three faculty members.

Note: At least 39 credits must be F300 level or above.

Arctic Skills
College of Rural and Community Development
Department of Emergency Services and Public Safety
907-455-2895
www.uaf.edu/rural/ (http://www.uaf.edu/rural)

Minor Only
The minor in Arctic skills is designed for anyone who lives and works in a northern climate and wishes to learn to cope with the outdoor Arctic environment.

Students who complete this minor also earn a State of Alaska EMTI certificate and may prepare to take the FAA written exam for partial fulfillment of the private pilot certificate requirements.

Minor
• Minor, Arctic Skills (p. 155)

Minor, Arctic Skills
Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY F100</td>
<td>Private Pilot Ground School</td>
<td>3-4</td>
</tr>
<tr>
<td>or AVTY F111</td>
<td>Fundamentals of Aviation</td>
<td></td>
</tr>
<tr>
<td>AVTY F231</td>
<td>Arctic Survival</td>
<td>3</td>
</tr>
<tr>
<td>or EMS F257</td>
<td>Arctic Survival</td>
<td></td>
</tr>
<tr>
<td>EMS F170</td>
<td>EMT: Emergency Medical Technician I</td>
<td>6</td>
</tr>
<tr>
<td>Approved electives 1 3-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 15-17

1 Approved by program manager.

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. 155)
• B.F.A., Art (p. 156)

Minor
• Minor, Art (p. 156)
• Minor, Art History (p. 157)

B.A., Art
Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>and ART F262X</td>
<td>History of World Art</td>
<td></td>
</tr>
<tr>
<td>Select two from the following: 6</td>
<td></td>
<td></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>
</tr>
<tr>
<td>ART F163</td>
<td>Three-Dimensional Design</td>
<td></td>
</tr>
</tbody>
</table>

Electives
Select three from the following electives (at least one must be a two-dimensional area, and one must be a three-dimensional area):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F205</td>
<td>Intermediate Drawing</td>
</tr>
<tr>
<td>ART F207</td>
<td>Beginning Printmaking</td>
</tr>
<tr>
<td>ART F213</td>
<td>Beginning Painting (Acrylic or Oil)</td>
</tr>
<tr>
<td>ART F271</td>
<td>Beginning Computer Art</td>
</tr>
<tr>
<td>ART F283</td>
<td>Basic Darkroom Photography</td>
</tr>
</tbody>
</table>

Two-dimensional Areas

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F205</td>
<td>Intermediate Drawing</td>
</tr>
<tr>
<td>ART F207</td>
<td>Beginning Printmaking</td>
</tr>
<tr>
<td>ART F213</td>
<td>Beginning Painting (Acrylic or Oil)</td>
</tr>
<tr>
<td>ART F271</td>
<td>Beginning Computer Art</td>
</tr>
<tr>
<td>ART F283</td>
<td>Basic Darkroom Photography</td>
</tr>
</tbody>
</table>
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

Select three upper-division courses from one of these areas: 9
Ceramics
Computer Art
Drawing
Metalsmithing
Native Studio Art
Painting
Photography
Printmaking
Sculpture

Select one from the following upper-division art history courses: 3
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 elective 3

Complete the baccalaureate capstone requirement as determined by the program.

Total Credits 39

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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.F.A. Degree Requirements
Complete the B.F.A. degree requirements. (p. 141)

Program Requirements
ART F105 Beginning Drawing 3
ART F261X History of World Art 6
and ART F262X and History of World Art

Select two from the following: 6
ART F161 Two-Dimensional Digital Design
ART F162 Color and Design
ART F163 Three-Dimensional Design

Select three from the following electives (at least one must be a two-dimensional area, and one must be a three-dimensional area): 9
Two-dimensional Areas
ART F205 Intermediate Drawing
ART F207 Beginning Printmaking
ART F213 Beginning Painting (Acrylic or Oil)
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 1
24

Select three from the following upper division art history courses: 9
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 6
Thesis project (including exhibition, portfolio and oral presentation) 3

Complete the baccalaureate capstone requirement as determined by the program.

Total Credits 66

1 Major program must include at least two, and no more than three, studio areas. Minimum requirement for the first area is 15 upper-division credits. Minimum requirement for the second area is 9 upper-division credits.

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.

Note: All studio areas in the department are eligible for fulfillment of specialization requirements: ceramics, computer art, metalsmithing, Native art, painting, drawing, photography, printmaking and sculpture.

Minor, Art

Minimum Requirements for Minor: 18 credits

Students must earn a C- grade or better in each course.

ART F105 Beginning Drawing 3
ART F261X History of World Art 3
Select one from the following:  
ART F161 Two-Dimensional Digital Design  
ART F162 Color and Design  
ART F163 Three-Dimensional Design  
Art Electives  9  
Total Credits  18

Note: A minor in art is only available to nonart majors.

Minor, Art History

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

ART F261X History of World Art  3  
ART F262X History of World Art  3

Select two from the following:  
ART F363 History of Modern Art  
ART F364 Italian Renaissance Art  
ART F365 Native Art of Alaska  
ART F463 Seminar in Art History  3

Total Credits  15

Note: Art majors are not eligible to minor in art history.

Asian Studies

College of Liberal Arts  
907-474-6507  
www.uaf.edu/language/ (http://www.uaf.edu/language)

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. 157)

Minor, Asian Studies

Minimum Requirements for Minor: 15 credits

Approved Asian Studies Courses

Select 15 credits from the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPN F201</td>
<td>Intermediate Japanese I</td>
</tr>
<tr>
<td>JPN F202</td>
<td>Intermediate Japanese II</td>
</tr>
<tr>
<td>Geography</td>
<td></td>
</tr>
<tr>
<td>GEG F311</td>
<td>Geography of Asia</td>
</tr>
<tr>
<td>History</td>
<td></td>
</tr>
<tr>
<td>HIST F121</td>
<td>East Asian Civilization</td>
</tr>
<tr>
<td>HIST F122X</td>
<td>East Asian Civilization</td>
</tr>
<tr>
<td>HIST F330</td>
<td>Modern China</td>
</tr>
<tr>
<td>HIST F331</td>
<td>Modern Japan</td>
</tr>
<tr>
<td>HIST F333</td>
<td>Foundations of Japanese History</td>
</tr>
<tr>
<td>Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL F202</td>
<td>Introduction to Eastern Philosophy</td>
</tr>
<tr>
<td>Political Science</td>
<td></td>
</tr>
<tr>
<td>PS F203</td>
<td>Peace, War and Security</td>
</tr>
<tr>
<td>PS F464</td>
<td>East Asian Governments and Politics</td>
</tr>
</tbody>
</table>

Total Credits  15

Note: Courses must be distributed among at least three departments and include material on at least two Asian countries. Students are strongly encouraged to include a semester or more of Asian language.

Biological Sciences

College of Natural Science and Mathematics  
Department of Biology and Wildlife  
907-474-7671  
www.bw.uaf.edu (http://www.bw.uaf.edu)

B.A., B.S. Degrees

Minimum Requirements for Degrees: 120 credits

Biological sciences is an appropriate major for students interested in the science of life. Programs in these fields provide a broad education and a foundation in the principles of biology. Graduates are employed in environmental science, health services, biology education, and as field and laboratory technicians. Graduates also pursue advanced M.S., pharmacology, nursing, MD or Ph.D. degrees. Biology faculty advisors can help students choose courses that will best fit their goals.

Biological sciences majors may pursue either a B.A. or B.S. degree. Because biology is an interdisciplinary science, both programs include course work in the physical sciences and mathematics. The B.A. requires fewer credits in natural science and more credits in the social sciences and humanities than the B.S. degree, which focuses more intensively on biological science. The B.S. degree without a concentration provides the most comprehensive education in biology. The B.S. degree with a concentration permits some degree of specialization in one of three sub-disciplines: cell and molecular biology, physiology, or ecology and evolutionary biology.

Incoming students who do not meet the prerequisites for BIOL F115X and those who did not complete a biology course in high school are encouraged to take a biology course for non-majors such as BIOL F103X or BIOL F104X and CHEM F105X and CHEM F106X during their first year, and to begin the BIOL F115X and BIOL F116X series in their sophomore year. Students unprepared for CHEM F105X are encouraged to take CHEM F103X beforehand.
Students majoring in the biological sciences must complete a capstone project during their junior or senior year. The goal of the capstone experience is to integrate skills and information students have learned in previous courses by conducting a mentored research project and communicating the results. Students will signal their intent to complete the capstone requirement by registering for BIOL F400. The capstone research project itself may be completed within one of the designated courses listed below, or by working individually with a faculty mentor. If the capstone project is conducted within a designated course, a passing grade on the project itself is required to satisfy the capstone requirement regardless of the course grade. Biology course credit for mentored research is available as BIOL F490, BIOL F397, or BIOL F497. More information about the capstone requirement is posted on the Biology and Wildlife website (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. 158)
- B.S., Biological Sciences (without concentration) (p. 161)
- B.S., Biological Sciences (with concentration) (p. 159)

Minor

- Minor, Biological Sciences (p. 162)

B.A., Biological Sciences

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
</tr>
</tbody>
</table>

B.A. Degree Requirements

Complete the B.A. Degree Requirements. (p. 141)

As part of the B.A. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
</tr>
</tbody>
</table>

Program Requirements

BIOL F115X Fundamentals of Biology I 4
BIOL F116X Fundamentals of Biology II 4
BIOL F260 Principles of Genetics 4
BIOL F481 Principles of Evolution 4
CHEM F321 Organic Chemistry I 4
PHYS F103X College Physics I 4

Biology Breadth Requirements

Select two from the following: 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
</tr>
<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
</tr>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
</tr>
<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
</tr>
</tbody>
</table>

or BIOL F213X Human Anatomy and Physiology I and BIOL F214X and Human Anatomy and Physiology II

Electives

Select three courses, at least one of which is designated a W course, from the following: 3,4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F400</td>
<td>Capstone Project</td>
</tr>
</tbody>
</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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F403</td>
<td>Metabolism and Biochemistry</td>
</tr>
<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
</tr>
<tr>
<td>BIOL F441</td>
<td>Animal Behavior</td>
</tr>
<tr>
<td>BIOL F472</td>
<td>Community Ecology</td>
</tr>
<tr>
<td>BIOL F473</td>
<td>Limnology</td>
</tr>
</tbody>
</table>

Total Credits 51-63

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 in addition to the required biology course.

LIST A - CELL AND MOLECULAR BIOLOGY

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
</tr>
<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>BIOL F403</td>
<td>Metabolism and Biochemistry</td>
</tr>
<tr>
<td>BIOL F417</td>
<td>Neurobiology</td>
</tr>
<tr>
<td>BIOL F435</td>
<td>Introduction to Biology of Cancer</td>
</tr>
<tr>
<td>BIOL F460</td>
<td>Principles of Virology</td>
</tr>
<tr>
<td>BIOL F462</td>
<td>Concepts of Infectious Disease</td>
</tr>
<tr>
<td>BIOL F465</td>
<td>Immunology</td>
</tr>
<tr>
<td>BIOL F466</td>
<td>Advanced Cell and Molecular Laboratory</td>
</tr>
</tbody>
</table>

Note: B.A., Biological Sciences (p. 158)

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, take at least 3 credits of upper-division course work.

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 or BIOL F497 or 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 If possible, satisfy all UAF core requirements for W and O courses and the biology capstone requirement with these elective courses.

5 Fulfills the baccalaureate capstone requirement.

6 Students working individually with a faculty member may, for example, take BIOL F490, BIOL F497 or do so without course credits.
LIST B - PHYSIOLOGY
BIOL F310 Animal Physiology 4
BIOL F335 Principles of Epidemiology 3
BIOL F342 Microbiology 4
BIOL F417 Neurobiology 3
BIOL F434 Structure and Function of Vascular Plants 4
BIOL F441 Animal Behavior 3
BIOL F455 Environmental Toxicology 3
BIOL F457 Environmental Microbiology 3
BIOL F458 Vertebrate Endocrinology 3
BIOL F459 Wildlife Nutrition 4
BIOL F462 Concepts of Infectious Disease 3
BIOL F465 Immunology 3
BIOL F412 Exercise Physiology 3

LIST C - ECOLOGY AND EVOLUTIONARY BIOLOGY
BIOL F371 Principles of Ecology 4
BIOL F418 Biogeography 3
BIOL F433 Conservation Genetics 3
BIOL F441 Animal Behavior 3
BIOL F457 Environmental Microbiology 3
BIOL F469 Landscape Ecology and Wildlife Habitat 3
BIOL F471 Population Ecology 3
BIOL F472 Community Ecology 3
BIOL F473 Limnology 3
BIOL F474 Plant Ecology 4
BIOL F476 Ecosystem Ecology 3
BIOL F483 Stream Ecology 3
BIOL F485 Global Change Biology 3
BIOL F486 Vertebrate Paleontology 3
BIOL F487 Conceptual Issues in Evolutionary Biology 3
BIOL F488 Arctic Vegetation Ecology Geobotany 3
BIOL F489 Vegetation Description and Analysis 3
WLF F301 Design of Wildlife Studies 3
WLF F410 Wildlife Populations and Their Management 3

LIST D - ORGANISMAL BIOLOGY
BIOL F301 Biology of Fishes 4
BIOL F331 Systematic Botany 4
BIOL F406 Entomology 4
BIOL F418 Biogeography 3
BIOL F425 Mammalogy 3
BIOL F426 Ornithology 3
BIOL F427 Ichthyology 4

BIOL F486 Vertebrate Paleontology 3
BIOL F489 Vegetation Description and Analysis 3

B.S., Biological Sciences with Concentration
Concentrations: Cell and Molecular Biology, Physiology, Ecology and Evolutionary Biology

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:
MATH F230X Calculus Essentials with Applications 3
or MATH F251X Calculus I 3
CHEM F105X and CHEM F106X General Chemistry I 8
and General Chemistry II

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:
STAT F200X Elementary Probability and Statistics 3
or STAT F300 Statistics 3

Select one PHYS sequence:
PHYS F103X and PHYS F104X College Physics I and College Physics II 8
PHYS F211X and PHYS F212X General Physics I and General Physics II

Program Requirements
BIOL F115X Fundamentals of Biology I 4
BIOL F116X Fundamentals of Biology II 4
BIOL F260 Principles of Genetics 4

Select one from the following:
BIOL F310 Animal Physiology 4
BIOL F434 Structure and Function of Vascular Plants 4
BIOL F342 Microbiology 4
BIOL F213X and BIOL F214X Human Anatomy and Physiology I and Human Anatomy and Physiology II 4
BIOL F481 Principles of Evolution 4
CHEM F321 Organic Chemistry I 4
CHEM F325 Organic Chemistry II 3-4
or CHEM F351 General Biochemistry Metabolism 3-4

Concentration
Select one from the following concentrations: 1,2 21-28
Cell and Molecular Biology
Physiology
Ecology and Evolutionary Biology

Capstone 3
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: 4

- BIOL F403 Metabolism and Biochemistry
- BIOL F434 Structure and Function of Vascular Plants
- BIOL F441 Animal Behavior
- BIOL F472 Community Ecology
- BIOL F473 Limnology

Total Credits: 70-82

1 When choosing courses to fulfill concentration requirements, students should consider the university requirement for two W courses and one O course, and the departmental requirement for a capstone project.

2 BIOL F397 or BIOL F497 or 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.

3 Fulfills the baccalaureate capstone requirement.

4 Students working individually with a faculty member may, for example, take BIOL F490, BIOL F497 or do so without course credits.

**Note:** A foreign language is encouraged by the department to meet the general education requirements.

**Concentrations**

**CELL AND MOLECULAR BIOLOGY**

As part of the program requirements above, complete:

- CHEM F325 Organic Chemistry II
- Complete the following (at least one of which must satisfy the W requirement):
  - BIOL F360 Cell and Molecular Biology 3
  - CHEM F450 General Biochemistry: Macromolecules 3
  - CHEM F351 General Biochemistry: Metabolism 3

**Cell and Molecular and Physiology Electives**

Select three additional courses from lists A or B, at least one of which must be from list A

**Biology Breadth Elective**

Select one additional course from lists C or D 3-4

Total Credits: 21-25

**PHYSIOLOGY**

- BIOL F360 Cell and Molecular Biology 3

**Physiology or Cell and Molecular Biology Electives**

Select four courses from list A or B, two of which must be from list B

**Biology Breadth Elective**

Select one additional course from lists C or D 3-4

**Biology Elective**

Select one additional course from lists A, B, C, or D 3-4

Total Credits: 21-27

**ECOLOGY OR EVOLUTIONARY BIOLOGY**

- BIOL F371 Principles of Ecology 4

**Ecology and Evolutionary Biology Electives**

Select two additional courses from list C 6-8

**Organismal Elective**

Select one additional course from list D 3-4

**Biology Breadth Elective**

Select one additional course from lists A or B 3-4

**Biology Elective**

Select one additional course from lists A, B, C, or D 3-4

**STAT F401 Regression and Analysis of Variance**

or **STAT F402 Scientific Sampling**

Total Credits: 22-28

At least one of the courses above must satisfy the W requirement.

**Biology Elective Course Lists**

Courses that satisfy upper-division elective credit may require prerequisites in addition to the required biology course.

**LIST A - CELL AND MOLECULAR BIOLOGY**

- BIOL F342 Microbiology 4
- BIOL F360 Cell and Molecular Biology 3
- BIOL F403 Metabolism and Biochemistry 4
- BIOL F417 Neurobiology 3
- BIOL F435 Introduction to Biology of Cancer 3
- BIOL F460 Principles of Virology 3
- BIOL F462 Concepts of Infectious Disease 3
- BIOL F465 Immunology 3
- BIOL F466 Advanced Cell and Molecular Laboratory 3
- CHEM F325 Organic Chemistry II 4
- CHEM F450 General Biochemistry: Macromolecules 3
- CHEM F351 General Biochemistry: Metabolism 3
- CHEM F470 Cellular and Molecular Neuroscience 3
- CHEM F474 Neurochemistry 3

**LIST B - PHYSIOLOGY**

- BIOL F310 Animal Physiology 4
- BIOL F335 Principles of Epidemiology 3
- BIOL F342 Microbiology 4
- BIOL F417 Neurobiology 3
- BIOL F434 Structure and Function of Vascular Plants 4
- BIOL F441 Animal Behavior 3
- BIOL F455 Environmental Toxicology 3
- BIOL F457 Environmental Microbiology 3
- BIOL F458 Vertebrate Endocrinology 3
- BIOL F459 Wildlife Nutrition 4
- BIOL F462 Concepts of Infectious Disease 3
- BIOL F465 Immunology 3
LIST C - ECOLOGY AND EVOLUTIONARY BIOLOGY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F412</td>
<td>Exercise Physiology</td>
<td>3</td>
</tr>
</tbody>
</table>

B.S., Biological Sciences without Concentration

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

- MATH F230X Calculus Essentials with Applications 3
- or MATH F251X Calculus I
- CHEM F105X General Chemistry I
- and CHEM F106X General Chemistry II

B.S. Degree Requirements

Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
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<tr>
<td>or STAT F300</td>
<td>Statistics</td>
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Select one from the following PHYS sequences:

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<tr>
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<tbody>
<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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<td>PHYS F211X</td>
<td>General Physics I</td>
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<tr>
<td>and PHYS F212X</td>
<td>and General Physics II</td>
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</table>

Program Requirements

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
<td>4</td>
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<tr>
<td>BIOL F116X</td>
<td>Fundamentals of Biology II</td>
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</tr>
<tr>
<td>BIOL F260</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
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Select one from the following:

<table>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<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 F213X</td>
<td>Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>and BIOL F214X</td>
<td>and Human Anatomy and Physiology II</td>
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</tr>
<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
<td></td>
</tr>
</tbody>
</table>

BIOL F481 Principles of Evolution 4

CHEM F321 Organic Chemistry I 4

CHEM F325 Organic Chemistry II 3-4

or CHEM F351 General Biochemistry: Metabolism

Electives

Organismal elective

Select one additional course from the following: 3-4

List D Biology electives

Select four additional courses at the 200 level or above, at least three of which must be from the following:

- Lists A, B, C, or D

Capstone

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL F400</td>
<td>Capstone Project</td>
<td>0</td>
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</tbody>
</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: 4

<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL F403</td>
<td>Metabolism and Biochemistry</td>
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<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
<td></td>
</tr>
</tbody>
</table>

BIOL F441 Animal Behavior

BIOL F472 Community Ecology

BIOL F473 Limnology

Total Credits 75-85

1 At least one must satisfy the W requirement.

2 BIOL F397 or BIOL F497 or 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.

3 Fulfills the baccalaureate capstone requirement.
Students working individually with a faculty member may, for example, take BIOL F490, BIOL F497 or do so without course credits.

**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 in addition to the required biology course.

**LIST A - CELL AND MOLECULAR BIOLOGY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
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<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
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<tr>
<td>BIOL F403</td>
<td>Metabolism and Biochemistry</td>
<td>4</td>
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<tr>
<td>BIOL F417</td>
<td>Neurobiology</td>
<td>3</td>
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<tr>
<td>BIOL F435</td>
<td>Introduction to Biology of Cancer</td>
<td>3</td>
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<tr>
<td>BIOL F460</td>
<td>Principles of Virology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F462</td>
<td>Concepts of Infectious Disease</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F465</td>
<td>Immunology</td>
<td>3</td>
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<tr>
<td>BIOL F466</td>
<td>Advanced Cell and Molecular</td>
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<td></td>
<td>Laboratory</td>
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<td>CHEM F325</td>
<td>Organic Chemistry II</td>
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<td>CHEM F450</td>
<td>General Biochemistry: Macromolecules</td>
<td>3</td>
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<tr>
<td>CHEM F351</td>
<td>General Biochemistry: Metabolism</td>
<td>3</td>
</tr>
<tr>
<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**

<table>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F417</td>
<td>Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F441</td>
<td>Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F455</td>
<td>Environmental Toxicology</td>
<td>3</td>
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<tr>
<td>BIOL F457</td>
<td>Environmental Microbiology</td>
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<td>BIOL F458</td>
<td>Vertebrate Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F459</td>
<td>Wildlife Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F462</td>
<td>Concepts of Infectious Disease</td>
<td>3</td>
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<td>BIOL F465</td>
<td>Immunology</td>
<td>3</td>
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<td>BIOL F466</td>
<td>Exercise Physiology</td>
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**LIST C - ECOLOGY AND EVOLUTIONARY BIOLOGY**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tr>
<td>BIOL F371</td>
<td>Principles of Ecology</td>
<td>4</td>
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<td>BIOL F418</td>
<td>Biogeography</td>
<td>3</td>
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<tr>
<td>BIOL F433</td>
<td>Conservation Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F441</td>
<td>Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F457</td>
<td>Environmental Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F469</td>
<td>Landscape Ecology and Wildlife Habitat</td>
<td>3</td>
</tr>
<tr>
<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>
<td>3</td>
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<tr>
<td>BIOL F474</td>
<td>Plant Ecology</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BIOL F476</td>
<td>Ecosystem Ecology</td>
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<td>BIOL F483</td>
<td>Stream Ecology</td>
<td>3</td>
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<tr>
<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>
<td>3</td>
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<tr>
<td>BIOL F487</td>
<td>Conceptual Issues in Evolutionary Biology</td>
<td>3</td>
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<tr>
<td>BIOL F488</td>
<td>Arctic Vegetation Ecology: Geobotany</td>
<td>3</td>
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<tr>
<td>BIOL F489</td>
<td>Vegetation Description and Analysis</td>
<td>3</td>
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<tr>
<td>WLF F301</td>
<td>Design of Wildlife Studies</td>
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<td>WLF F410</td>
<td>Wildlife Populations and Their Management</td>
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**LIST D - ORGANISMAL BIOLOGY**

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<td>Biology of Fishes</td>
<td>4</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>
<td>4</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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<tr>
<td>BIOL F426</td>
<td>Ornithology</td>
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<tr>
<td>BIOL F427</td>
<td>Ichthyology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL F486</td>
<td>Vertebrate Paleontology</td>
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<tr>
<td>BIOL F489</td>
<td>Vegetation Description and Analysis</td>
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</table>

**Minor, Biological Sciences**

Minimum Requirements for Minor: 18 credits

Students must earn a C- grade or better in each course.

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
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<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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Select one from the following options: 1

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL F213X</td>
<td>Human Anatomy and Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>and BIOL F214X</td>
<td>Human Anatomy and Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F342</td>
<td>Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F360</td>
<td>Cell and Molecular Biology</td>
<td>3</td>
</tr>
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<td>BIOL F371</td>
<td>Principles of Ecology</td>
<td>3</td>
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<td>BIOL F434</td>
<td>Structure and Function of Vascular Plants</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F481</td>
<td>Principles of Evolution</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one additional course in biology at the 200 level or above | 3

Total Credits | 18-23

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
www.uaf.edu/som/degrees/undergraduate/ba/ (http://www.uaf.edu/som/degrees/undergraduate/ba)
B.B.A. Degree

Minimum Requirements for Degree: 120 credits

The Business Administration Department offers professional education to students interested in management, finance, human resource management, international business, marketing and travel industry 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 and enables them to apply imaginative and responsible leadership to the needs of industry and government.

The undergraduate and graduate programs are accredited by the Association to Advance Collegiate Schools of Business.

Degree
- B.B.A., Business Administration (p. 163)

Minors
- Minor, Finance (p. 163)
- Minor, General Business (p. 164)
- Minor, Management and Organizations (p. 164)
- Minor, Marketing (p. 164)
- Minor, Sports Management (p. 164)

B.B.A., Business Administration

Concentrations: Finance, General Business, Marketing

Minimum Requirements for Degree: 120 credits

Students must earn a C grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

BA F323X Business Ethics 3
MATH F230X Calculus Essentials with Applications 3

Select one from the following:
- One oral-intensive course designated (O) and one oral-intensive designated (O/2)
- Complete two oral-intensive courses designated (O)
- Complete three oral-intensive courses designated (O/2)

B.B.A. Degree Requirements
Complete the B.B.A. degree requirements. (p. 146)

Common Body of Knowledge 1
As part of the Common Body of Knowledge, complete:

AIS F310 Management of Information Systems
BA F151X Introduction to Business 3
ENGL F314 Technical Writing 3

Program Requirements

BA F307 Introductory Human Resources Management 3
ECON F321 Intermediate Microeconomics 3

or ECON F351 Public Finance

Select one from the following:
- BA F460 International Business
- BA F461 International Finance
- ECON F463 International Economics

Additional 6 credits from ACCT, BA or ECON 6

Concentrations
Select one from the following concentrations:
- Finance
- General Business
- Marketing

Total Credits 85-88

1 As part of the Common Body of Knowledge BA F462 fulfills the baccalaureate capstone requirement.

Concentrations

FINANCE
Select four from the following: 12

BA F423 Investment Analysis
BA F424 Real Estate and Alternative Investments
BA F454 Student Investment Fund
BA F455 Portfolio Management
BA F461 International Finance

Total Credits 12

GENERAL BUSINESS
Select four School of Management courses approved by the undergraduate director 12
At least three must be BA courses
At least six hours must be upper-division

Total Credits 12

Note: At least one course must be designated writing-intensive (W).

MARKETING
Select four from the following: 12

BA F241 Advertising, Sales and Promotion
BA F436 Consumer Behavior
BA F445 Marketing Research
BA F490 Services Marketing
BA F491 Current Topics in Marketing

Total Credits 12

Business students may earn a minor as long as their business degree requirements are met first.

Note: The B.B.A. degree requires 50 percent of the accounting, business administration and economics credits to be earned in residence at UAF.

Note: Only one B.B.A. degree may be earned with a concentration in finance, general business or marketing.

Minor, Finance
Minor, General Business

Minimum Requirements for Minor: 15 credits

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<tr>
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<td>Principles of Financial Accounting</td>
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<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
<td>3</td>
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<tr>
<td>BA F325</td>
<td>Financial Management</td>
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<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
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Select one from the following with instructor permission: 3

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<tr>
<td>BA F423</td>
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<tr>
<td>BA F424</td>
<td>Real Estate and Alternative Investments</td>
</tr>
<tr>
<td>BA F461</td>
<td>International Finance</td>
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</tbody>
</table>

Total Credits 15

Minor, Management and Organizations

Minimum Requirements for Minor: 15 credits

Select five from the following: 15

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
</tr>
<tr>
<td>BA F317</td>
<td>Employment Law</td>
</tr>
<tr>
<td>BA F325</td>
<td>Financial Management</td>
</tr>
<tr>
<td>BA F330</td>
<td>The Legal Environment of Business</td>
</tr>
<tr>
<td>BA F343</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>BA F360</td>
<td>Operations Management</td>
</tr>
<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
</tr>
<tr>
<td>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
</tr>
</tbody>
</table>

Total Credits 15

Minor, Marketing

Minimum Requirements for Minor: 15 credits

Select five from the following: 15

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BA F241</td>
<td>Advertising, Sales and Promotion</td>
</tr>
<tr>
<td>BA F343</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>BA F436</td>
<td>Consumer Behavior</td>
</tr>
<tr>
<td>BA F490</td>
<td>Services Marketing</td>
</tr>
<tr>
<td>BA F491</td>
<td>Current Topics in Marketing</td>
</tr>
</tbody>
</table>

Total Credits 15

Minor, Sports Management

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BA F280</td>
<td>Sports Leadership</td>
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<tr>
<td>BA F281</td>
<td>Sports Management</td>
</tr>
</tbody>
</table>

Select three from the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
</tr>
<tr>
<td>AIS F310</td>
<td>Management of Information Systems</td>
</tr>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BA F253</td>
<td>Internship in Business</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
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<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
</tr>
<tr>
<td>BA F457</td>
<td>Training and Management Development</td>
</tr>
<tr>
<td>PSY F337</td>
<td>Sport Psychology</td>
</tr>
</tbody>
</table>

Total Credits 15

Chemistry

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
www.uaf.edu/chem/ (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. 256), biochemistry and molecular biology (p. 253), and environmental chemistry (p. 282).

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, www.uaf.edu/chem/ (http://www.uaf.edu/chem).

Degrees

• B.A., Chemistry (p. 165)
• B.S., Chemistry (p. 166)

Minor

• Minor, Chemistry (p. 167)
• Minor, Biochemistry (p. 167)

B.A., Chemistry

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>8</td>
</tr>
<tr>
<td>or PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>and PHYS F212X</td>
<td>and General Physics II</td>
<td>8</td>
</tr>
</tbody>
</table>

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)
As part of the B.A. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

Program Requirements
Complete the program (major) requirements as listed under chemistry B.A. degree, including:

<table>
<thead>
<tr>
<th>Course</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>
</tbody>
</table>

Minor in Justice

<table>
<thead>
<tr>
<th>Course</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 F222</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>JUST F251</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>JUST F300X</td>
<td>Ethics and Justice</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>

Total Credits

41

Note: JUST F300X may not be used to fulfill core ethics requirement.

Note: This degree does not encompass the depth required to be an American Chemistry Society-approved chemistry degree. Students taking this degree 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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

<table>
<thead>
<tr>
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<th>Credits</th>
</tr>
</thead>
<tbody>
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<tr>
<td>or PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>and PHYS F212X</td>
<td>and General Physics II</td>
<td>8</td>
</tr>
</tbody>
</table>

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)
As part of the B.A. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

Program Requirements
Complete the program (major) requirements as listed under chemistry B.A. degree, including:

<table>
<thead>
<tr>
<th>Course</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>
</tbody>
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<td>Research Methods</td>
<td>3</td>
</tr>
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<td>JUST F251</td>
<td>Criminology</td>
<td>3</td>
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<tr>
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<td>Procedural Law</td>
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</tr>
<tr>
<td>JUST F454</td>
<td>Advanced Problems in Procedural Law</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits

41

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.

B.S., Chemistry
American Chemistry Society-approved

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

- MATH F251X Calculus I
- PHYS F103X College Physics I
- PHYS F104X College Physics II
- PHYS F211X General Physics I
- PHYS F212X General Physics II

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)
As part of the B.S. requirements, complete:

- MATH F252X Calculus II

Program Requirements
CHEM F105X General Chemistry I
CHEM F106X General Chemistry II
CHEM F202 Basic Inorganic Chemistry
CHEM F212 Chemical Equilibrium and Analysis
CHEM F321 Organic Chemistry I
CHEM F325 Organic Chemistry II
CHEM F331 Physical Chemistry I
CHEM F332 Physical Chemistry II
CHEM F351 General Biochemistry: Metabolism
CHEM F434 Chemistry Capstone Laboratory
CHEM F481 Seminar
CHEM F482 Seminar
Select one from the following: 3-4

- CHEM F488 Undergraduate Chemistry and Biochemistry Research (3 credits)
- CHEM F288 Introduction to Chemical Research and Undergraduate Chemistry and Biochemistry Research (2 credits each)

- MATH F253X Calculus III

Select two from the following: 6

- CHEM F402 Inorganic Chemistry
- CHEM F450 General Biochemistry: Macromolecules
- CHEM F314 Analytical Instrumental Laboratory

Total Credits 69-70

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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

- MATH F251X Calculus I
- PHYS F103X College Physics I
- PHYS F104X College Physics II
- PHYS F211X General Physics I
- PHYS F212X General Physics II

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree requirements, complete:

- MATH F252X Calculus II

Program Requirements
CHEM F105X General Chemistry I
CHEM F106X General Chemistry II
BIOL F115X Fundamentals of Biology I
BIOL F116X Fundamentals of Biology II
CHEM F202 Basic Inorganic Chemistry
CHEM F212 Chemical Equilibrium and Analysis
CHEM F321 Organic Chemistry I
CHEM F325 Organic Chemistry II
CHEM F331 Physical Chemistry I
CHEM F332 Physical Chemistry II
CHEM F351 General Biochemistry: Metabolism
CHEM F450 General Biochemistry: Macromolecules
CHEM F481 Seminar
CHEM F482 Seminar
CHEM F488 Undergraduate Chemistry and Biochemistry Research
Select four from the following: 12-14

- CHEM F332 Physical Chemistry II
- CHEM F434 Chemistry Capstone Laboratory
- CHEM F455 Environmental Toxicology
- CHEM F470 Cellular and Molecular Neuroscience
- CHEM F474 Neurochemistry
- BIOL F240 Beginnings in Microbiology

Select 10 credits from the following: 1

- CHEM F360 Cell and Molecular Biology
- CHEM F455 Environmental Toxicology
- CHEM F470 Cellular and Molecular Neuroscience
- CHEM F474 Neurochemistry
- BIOL F240 Beginnings in Microbiology
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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:
MATH F251X Calculus I 4
PHYS F103X College Physics I 8
and PHYS F104X and College Physics II
or PHYS F211X General Physics I 8
and PHYS F212X General Physics II

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree, complete:
MATH F252X Calculus II 4

Program Requirements
CHEM F105X General Chemistry I 4
CHEM F106X General Chemistry II 4
CHEM F202 Basic Inorganic Chemistry 3
CHEM F212 Chemical Equilibrium and Analysis 4
CHEM F314 Analytical Instrumental Laboratory 3
CHEM F321 Organic Chemistry I 4
CHEM F325 Organic Chemistry II 4
CHEM F331 Physical Chemistry I 4
CHEM F332 Physical Chemistry II 4
CHEM F434 Chemistry Capstone Laboratory 3
CHEM F481 Seminar 1
CHEM F482 Seminar 2
CHEM F488 Undergraduate Chemistry and Biochemistry Research 3-4

Total Credits 76-79

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)
Complete all the requirements of the chemistry B.A. or B.S. degree.

All prospective science teachers must complete the following:
PHIL F481 Philosophy of Science 3

Total Credits 3

Note: We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in your undergraduate degree program so that you can be appropriately advised of the State of Alaska requirements for teacher licensure.

Minor, Biochemistry
Minimum Requirements for Minor: 26 credits

CHEM F105X General Chemistry I 4
CHEM F106X General Chemistry II 4
CHEM F321 Organic Chemistry I 4
CHEM F325 Organic Chemistry II 4
CHEM F331 Physical Chemistry I 4
CHEM F351 General Biochemistry: Metabolism 3
CHEM F202 Basic Inorganic Chemistry 3-4

Total Credits 26-27

Minor, Chemistry
Minimum Requirements for Minor: 27 credits
List of Chemistry Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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 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 F202</td>
<td>Basic Inorganic Chemistry</td>
<td>3-4</td>
</tr>
<tr>
<td>or CHEM F332</td>
<td>Physical Chemistry II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 27-28

Child Development and Family Studies

College of Rural and Community Development
Department of Social and Human Development
www.uaf.edu/rural/ [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.

Degree

- B.A., Child Development and Family Studies (p. 168)

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.

General University Requirements

Complete the general university requirements. (p. 136) ¹

General Education Requirements

Complete the general education requirements. (p. 139)

B.A. Degree Requirements

Complete the B.A. degree requirements. (p. 141)

As part of the B.A. social science degree requirements, complete:

- PSY F101X Introduction to Psychology 3

Humanities/Social Science

Select three from the following: 9

- ANS F242X Native Cultures of Alaska
- ANS F320 Language and Culture in Alaska
- ANS F330 Yup'ik Parenting and Child Development
- ANS F461 Native Ways of Knowing
- ANTH F407 Kinship and Social Organization
- LING F303 Language Acquisition

Mathematics

Select one from the following: 3-4

- CS F101 Computers and Society
- CS F102 Introduction to Computer Science
- MATH F113X Concepts and Contemporary Applications of Mathematics
- MATH F122X Precalculus for Business and Economics
- MATH F151X College Algebra for Calculus

Program Requirements

- ECE F101 Introduction to Early Childhood Profession 3
- ECE F104X Child Development I: Prenatal, Infants and Toddlers 3
- ECE F107 Child Development II: The Preschool and Primary Years 3
- ECE F110 Safe, Healthy, Learning Environments 3
- ECE F140 Positive Social and Emotional Development 3
- ECE F210 Child Guidance 3
- ECE F229 Foundations in Nutrition and Physical Wellness 3
- ECE F235 Screening, Assessment and Recording or ECE F130 Culture, Learning and the Young Child 2
- ECE F305 Social Emotional Development: Reflection and Practice 3
- ECE F342 Family Relationships 3
- ECE F350 Play: Foundation for Development 3
- ECE F445 Adolescence Through the Lifespan 3
- ECE F480 Child Development and Family Studies Portfolio 1
Concentrations

Select one from the following concentrations: 24

Administration within the Early Childhood Field
Curriculum and Teaching
Family Support
Infant and Toddler

Total Credits 75-76

1 As part of the core curriculum requirements, the following courses are recommended: ENGL F213X, MATH F113X, MATH F122X, or MATH F151X; BIOL F104X, GEOG F111X or GEOS F120X.

Concentrations

ADMINISTRATION WITHIN THE EARLY CHILDHOOD FIELD

Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

ECE F340 Financial Management of Early Childhood Programs 3
ECE F341 Personnel Management of Early Childhood Programs 3
ECE F471 Clinical Practice: Organizational Action Research 3
CIOS F150 Computer Business Applications 3
ENGL F212 Business, Grant and Report Writing 3
BA S301 Principles of Management
BA S343 Principles of Marketing
BA S490 Political and Social Environment of Business

Total Credits 15

Note: ECON F201X or ECON F202X is a prerequisite for BA S490.

Note: This specialization is offered in collaboration with the University of Alaska Southeast. For course descriptions of UAS courses see current University of Alaska Southeast catalog. These courses are available by distance delivery.

CURRICULUM AND TEACHING

Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

ECE F240 Inclusion of Children with Special Needs 3
ECE F310 Constructivist Curriculum 3
ECE F360 Assessment in Early Childhood 3
ECE F420 Developing Literacy in the Early Years 3
ECE F430 Fine Arts for the Early Years 3
ECE F440 Exploring Math and Science 3
ECE F472 Clinical Practice: Classroom Research 3
ECE F473 Clinical Practice: Classroom Management 3

or ECE F270 Practicum II

Total Credits 24

1 Student must earn a B grade or higher in each course.

Note: ECE F270 as approved by CDFS program.

FAMILY SUPPORT

Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

Note: Students completing the family support concentration need to complete SWK F103X as a prerequisite to SWK F360.

ECE F242 Child and Family Ecology 3
ECE F301 Parents as Partners in Education 3
or ECE F302 Building Home Program Relationships: Prenatal to 3 Years 3
ECE F306 Building Bridges to Support Family Mental Health 3
ECE F405 Seminar in Culture and Child Rearing Practices 3
ECE F410 Supporting Family Relationships through Mentoring 3
ECE F442 Family Resource Management 3
ECE F471 Clinical Practice: Organizational Action Research 3
SWK F360 Child Abuse and Neglect 3

Total Credits 24

INFANT AND TODDLER

Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

ECE F214 Infants and Toddlers 3
ECE F302 Building Home Program Relationships: Prenatal to 3 Years 3
ECE F304 Attachment and Social Development 3
ECE F320 Environment and Curriculum for Infants and Toddlers 3
ECE F405 Seminar in Culture and Child Rearing Practices 3
ECE F421 From Babbling to Talking to Early Literacy 3
ECE F472 Clinical Practice: Classroom Research 3
ECE F473 Clinical Practice: Classroom Management 3
or ECE F270 Practicum II

Total Credits 24

2 Student must earn a B grade or higher in each course.
For students entering the program with an A.A. or A.A.S. degree in early childhood education from a regionally accredited college or university (23 credits accepted as a block of courses).

Minimum Requirements for Degree: 120 credits

Students must earn a C grade or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 136)

**General Education Requirements**
Complete the general education requirements. (p. 139)

**B.A. Degree Requirements**
Complete the B.A. degree requirements. (p. 141)
As part of the B.A. social science degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F101X</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Humansities/Social Science**
Select three from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS F320</td>
<td>Language and Culture in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS F330</td>
<td>Yup'ik Parenting and Child Development</td>
<td>3</td>
</tr>
<tr>
<td>ANS F461</td>
<td>Native Ways of Knowing</td>
<td>3</td>
</tr>
<tr>
<td>ANTH F407</td>
<td>Kinship and Social Organization</td>
<td>3</td>
</tr>
<tr>
<td>LING F303</td>
<td>Language Acquisition</td>
<td>3</td>
</tr>
</tbody>
</table>

**Mathematics**
Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS F101</td>
<td>Computers and Society</td>
<td>3</td>
</tr>
<tr>
<td>CS F102</td>
<td>Introduction to Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>MATH F113X</td>
<td>Concepts and Contemporary Applications of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH F122X</td>
<td>Precalculus for Business and Economics</td>
<td>3</td>
</tr>
<tr>
<td>MATH F151X</td>
<td>College Algebra for Calculus</td>
<td>3</td>
</tr>
</tbody>
</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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</td>
<td>1</td>
</tr>
</tbody>
</table>

**Concentrations**
Select one from the following concentrations:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration within the Early Childhood Field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum and Teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant and Toddler</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

As part of the general education requirements, the following courses are recommended: ENGL F213X, MATH F113X, MATH F122X, or MATH F151X; BIOL F104X, GEOG F111X or GEOS F120X.

**Concentrations**

**ADMINISTRATION WITHIN THE EARLY CHILDHOOD FIELD**

Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 F471</td>
<td>Clinical Practice: Organizational Action Research</td>
<td>3</td>
</tr>
<tr>
<td>CIOS F150</td>
<td>Computer Business Applications</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F212</td>
<td>Business, Grant and Report Writing</td>
<td>3</td>
</tr>
<tr>
<td>BA S301</td>
<td>Principles of Management</td>
<td></td>
</tr>
<tr>
<td>BA S343</td>
<td>Principles of Marketing</td>
<td></td>
</tr>
<tr>
<td>BA S490</td>
<td>Political and Social Environment of Business</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

Note: ENGL F201X or ENGL F202X is a prerequisite for BA S490.

Note: This specialization is offered in collaboration with the University of Alaska Southeast. For course descriptions of UAS courses see the current University of Alaska Southeast catalog. These courses are available by distance delivery.

**CURRICULUM AND TEACHING**

Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F240</td>
<td>Inclusion of Children with Special Needs</td>
<td>3</td>
</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 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</td>
<td>3</td>
</tr>
<tr>
<td>ECE F473</td>
<td>Clinical Practice: Classroom Management</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F270</td>
<td>Practicum II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

Note: ECE F270 as approved by CDFS program.

1. Student must earn a B grade or higher in each course.
FAMILY SUPPORT
Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

Note: Students completing the family support concentration need to complete SWK F103X as a prerequisite to SWK F360.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</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>or ECE F302</td>
<td>Building Home Program Relationships: Prenatal to 3 Years</td>
<td>3</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>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

INFANT AND TODDLER
Students completing any CFDS concentration will need an additional 6 upper-division (300-400) credits within the Humanities/Social Science B.A. general degree requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE F214</td>
<td>Infants and Toddlers</td>
<td>3</td>
</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>
</tr>
<tr>
<td>ECE F405</td>
<td>Seminar in Culture and Child Rearing Practices</td>
<td>3</td>
</tr>
<tr>
<td>ECE F421</td>
<td>From Babbling to Talking to Early Literacy</td>
<td>3</td>
</tr>
<tr>
<td>ECE F472</td>
<td>Clinical Practice: Classroom Research</td>
<td>3</td>
</tr>
<tr>
<td>ECE F473</td>
<td>Clinical Practice: Classroom Management</td>
<td>3</td>
</tr>
<tr>
<td>or ECE F270</td>
<td>Practicum II</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

2 Student must earn a B grade or higher in each course.

Civil and Environmental Engineering

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 the Accreditation Board for Engineering and Technology. All engineering programs in the department give special attention to problems of northern regions.

The civil engineering program educational objectives are:

1. Graduates will have a strong fundamental scientific and technical knowledge base as well as strong critical thinking skills.
2. Graduates will apply their engineering skills to critically analyze and interpret data and be proficient in engineering design accommodating the total project environment.
3. Graduates will be able to communicate with the technical, professional and broader communities in written, verbal and visual formats, including interacting in interdisciplinary contexts.
4. Graduates will demonstrate high standards in ethical, legal and professional obligations to protect human health, welfare and the environment.
5. Graduates will be active in the professional civil engineering community, actively contribute to the profession and pursue lifelong learning.

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 and Environmental Engineering (p. 171)**

Minimum Requirements for Degree: 134 credits

Students must earn a C- grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 136)

**General Education Requirements**

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</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>
</tbody>
</table>
B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE F112</td>
<td>Elementary Surveying</td>
<td>3</td>
</tr>
<tr>
<td>CE F302</td>
<td>Introduction to 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 F432</td>
<td>Steel Design</td>
<td>3</td>
</tr>
<tr>
<td>CE F437</td>
<td>Design of Engineered Systems I</td>
<td>3</td>
</tr>
<tr>
<td>CE F438</td>
<td>Design of Engineered Systems II</td>
<td>3</td>
</tr>
<tr>
<td>CE F470</td>
<td>Civil Engineering Internship</td>
<td>1</td>
</tr>
<tr>
<td>or CE F471</td>
<td>Field Practicum</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 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 II</td>
<td>4</td>
</tr>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

Technical Electives

Field of environmental engineering, construction, or transportation | 3
CE, ENVE, ESM courses or approved technical courses, | 6
or ES F307, Elements of Electrical Engineering or ES F346, Basic Thermodynamics | 3

Fundamentals of Engineering (FE) Examination

Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

Total Credits: 107

Note: The ability to use computers for normal class work is expected in all engineering classes above the F100 level.

---

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. of justice, and is applicable to business administration, social work, psychology and counseling contexts.

Degree

- B.A., Communication (p. 172)

Minors

- Minor, Communication (p. 173)
- Minor, Alternative Dispute Resolution (p. 173)

B.A., Communication

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

B.A. Degree Requirements

Complete the B.A. degree requirements. (p. 141)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM F180X</td>
<td>Introduction to Human Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM F330</td>
<td>Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM F351</td>
<td>Gender and Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM F401</td>
<td>Communication Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>COMM F425</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>COMM F482</td>
<td>Capstone Seminar in Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Select four from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM F300X</td>
<td>Communicating Ethics</td>
<td>2</td>
</tr>
<tr>
<td>COMM F320</td>
<td>Communication and Language</td>
<td>3</td>
</tr>
<tr>
<td>COMM F321</td>
<td>Nonverbal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Fulfills the baccalaureate capstone requirement.

1 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.

2 The ability to use computers for normal class work is expected in all engineering classes above the F100 level.
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 the state 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 utilize their broad education emphasizing computer 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 computer engineering, including its scientific principles, rigorous analysis, and creative design.
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 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/.

Degree

• B.S., Computer Engineering (p. 174)

B.S., Computer Engineering

Minimum Requirements for Degree: 134 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

CHEM F105X General Chemistry I 8
CHEM F106X and General Chemistry II
or PHYS F213X Elementary Modern Physics

MATH F251X Calculus I 4

B.S. Degree Requirements

Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:

MATH F252X Calculus II 4

PHYS F211X General Physics I 8

PHYS F212X and General Physics II

Program Requirements

CS F201 Computer Science I 3
CS F202 Computer Science II 3

CS F301 Assembly Language Programming 3
CS F311 Data Structures and Algorithms 3
CS F321 Operating Systems 3
CS F331 Programming Languages 3

EE F102 Introduction to Electrical and Computer Engineering 3

EE F203 Electrical Engineering Fundamentals I 4
EE F204 Electrical Engineering Fundamentals II 4
EE F333 Physical Electronics 4
EE F331 Applied Engineering Electromagnetics 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 F431 Programming Language Implementation

CS F471 Senior Capstone I
CS F472 Senior Capstone II
CS F481 Graphics Rendering

EE F334 Electronic Circuit Design
EE F434 Instrumentation Systems
EE F451 Digital Signal Processing
EE F461 Communication Systems
EE F464 Communication Networks Design
EE F471 Fundamentals of Automatic Control

Approved Engineering Science Elective 3

ES F208 Mechanics
ES F331 Mechanics of Materials
ES F341 Fluid Mechanics
ES F346 Basic 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.

Total Credits 107

1 Fulfills the baccalaureate capstone requirement.

Computer Information Technology Specialist

College of Rural and Community Development
Community and Technical College
907-455-2800
www.ctc.uaf.edu/its/ (http://www.ctc.uaf.edu/its)

Minor Only

Minor

• Minor, Computer Information Technology Specialist (p. 174)

Minor, Computer Information Technology

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.
CITS F204  Introduction to Network Support and Administration  3
CITS F212  Server Operating Systems  3
CITS F261  Computer and Network Security  3
Two CITS electives  6
Total Credits  15

Computer Science

College of Engineering and Mines
Department of Computer Science
907-474-2777
www.cs.uaf.edu (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 the Accreditation Board for Engineering and Technology.

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. 175)
• B.S./M.S., Computer Science (p. 175)

Minor

• Minor, Computer Science (p. 176)

B.S., Computer Science

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:
MATH F251X  Calculus I  4
Any approved ethics course

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree requirements, complete:
MATH F252X  Calculus II  4
MATH F253X  Calculus III  4
MATH F307  Discrete Mathematics  3
PHYS F211X  General Physics I  4
PHYS F212X  General Physics II  4
STAT F300  Statistics  3

Select one from the following:
MATH F302  Differential Equations
MATH F310  Numerical Analysis
MATH F314  Linear Algebra
MATH F371  Probability
MATH F405  Abstract Algebra
MATH F408  Mathematical Statistics
MATH F460  Mathematical Modeling

Program Requirements
CS F201  Computer Science I  3
CS F202  Computer Science II  3
CS F301  Assembly Language Programming  3
CS F311  Data Structures and Algorithms  3
CS F321  Operating Systems  3
CS F331  Programming Languages  3
CS F371  Computer Ethics and Technical Communication  3
CS F372  Software Construction  3
CS F411  Analysis of Algorithms  3
CS F441  System Architecture  3-4
or EE F443  Computer Engineering Analysis and Design
CS F471  Senior Capstone I  3
CS F472  Senior Capstone II  3
EE F341  Digital and Computer Analysis and Design  4

Electives in computer science at the F300 or F400 level or approved electives, such as:
EE F443  Computer Engineering Analysis and Design  9

Total Credits  75-76

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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

MATH F251X Calculus I 4
Any approved ethics course

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree requirements, complete:

MATH F252X Calculus II 4
PHYS F211X General Physics I 4
PHYS F212X General Physics II 4

B.S. Program Requirements
CS F201 Computer Science I 3
CS F202 Computer Science II 3
CS F301 Assembly Language Programming 3
CS F311 Data Structures and Algorithms 3
CS F321 Operating Systems 3
CS F331 Programming Languages 3
CS F371 Computer Ethics and Technical Communication 3
CS F372 Software Construction 3
CS F411 Analysis of Algorithms 3
CS F441 System Architecture 3
or EE F443 Computer Engineering Analysis and Design 3
CS F471 Senior Capstone I 3
CS F472 Senior Capstone II 3
EE F341 Digital and Computer Analysis and Design 4
MATH F253X Calculus III 4
MATH elective at the F300/F400 level 3
MATH F307 Discrete Mathematics 3
STAT F300 Statistics 3

M.S. Program Requirements
CS F600 Professional Software Development 4
CS F601 Algorithms, Architecture and Languages 4
CS F690 Graduate Seminar and Project 3
CS F691 Graduate Seminar and Project 3
CS upper-division/graduate level electives. 3
CS graduate level electives 6

Exam
Pass a written comprehensive exam in computer science theory and practice.

Total Credits 92-93

1. 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.

CS F201 Computer Science I 3
CS F202 Computer Science II 3
Select three from the following electives: 9
F300 or F400 level from CS
EE F341 Digital and Computer Analysis and Design
MATH F310 Numerical Analysis
MATH F460 Mathematical Modeling
Electives approved by a computer science advisor

Total Credits 15

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 Journalism
907-474-7761
www.uaf.edu/journal/ (http://www.uaf.edu/journal)

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 campus newspaper. 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. 176)

Minor
• Minor, Digital Journalism (p. 177)

B.A., Digital Journalism

Minimum Requirements for Degree: 120 credits
Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

As part of the B.A. degree requirements, complete:

HIST F132X History of the U.S. 3

Program Requirements

JRN F101X Media and Culture 3
JRN F202 News Writing for the Media 3
JRN F251 Introduction to Video Production 4
JRN F302 Reporting 3
JRN F400 Professional Media Internship 3
JRN F404 Photojournalism I 3
JRN F413 Mass Media Law and Regulation 3
JRN F421 Journalism in Perspective 3
JRN F432 Public Relations Techniques 3
JRN F454 Newscast 3
JRN F490 Online Publication: “Extreme Alaska” 2 3

Select one from the following: 3

JRN F215 Radio Production
JRN F323 Editing for Journalists
JRN F406 Photojournalism II
JRN F480 Documentary Filmmaking

Select one course from the following list of approved journalism electives: 3

JRN F204/ART F284 Basic Digital Photography
JRN F215 Radio Production
JRN F240 Foreign Corresponding
JRN F250 Website Design
JRN/FLPA F280 Video Storytelling
JRN F311 Magazine Article Writing
JRN F323 Editing for Journalists
JRN F324 Typography and Publication Design
JRN/WGS F380 Women, Minorities and the Media
JRN F390 Social Media Toolkit
JRN F402/ART F483 Advanced Photography
JRN F405/ART F465 Advanced Photography Seminar
JRN F406 Photojournalism II
JRN F407/ART F487 Digital Darkroom
JRN F411 Writing for a Living
JRN F440 Ethics and Reporting in the Far North
JRN F444 Investigative Reporting
JRN F452 Radio and Television News Writing
JRN F453 Television News Reporting
JRN F454 Newscast
JRN F456 Science Writing for Magazines and Newspapers
JRN F480 Documentary Filmmaking

JRN/ART F484 Multimedia Theory and Practice
JRN F493 Special Topics
JRN F497 Independent Study
JRN F498 Undergraduate Research

Complete credits outside of journalism 1 80

Total Credits 123

1 To assure the journalist a broad liberal arts education, 80 credits must be taken from outside of journalism, 65 of which should be from any of these departments: ALST, ANL, ANS, ANTH, ART, ATM, BIOL, CHEM, COMM, ECON, ENGL, ENVE, ESK, FISH, FL, FLPA, FREN, GEOF, GEOS, GER, HIST, HONR, HUM, JPN, JUST, LING, LS, MATH, MSL, MUS, NORS, NRM, PHIL, PHYS, PS, PSY, RUSS, SOC, SPAN, STAT and WGS

2 Fulfills the baccalaureate capstone requirement.

Minor, Digital Journalism

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

JRN F101X Media and Culture 3
JRN F202 News Writing for the Media 3

Approved JRN electives 1 9

Total Credits 15

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.

Early Childhood Education

College of Rural and Community Development
907-474-7143
Community and Technical College
907-455-2800
www.ctc.uaf.edu/programs/e-childhood/ (http://www.ctc.uaf.edu/programs/e-childhood)

Minor Only

Minor

• Minor, Early Childhood Education (p. 177)

Minor, Early Childhood Education

Minimum Requirements for Minor: 18 credits

ECE F101 Introduction to Early Childhood Profession 3
ECE F104X Child Development I: Prenatal, Infants and Toddlers 3
or ECE F107 Child Development II: The Preschool and Primary Years

Select 12 ECE credits 1 12

Total Credits 18
Earth Science

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
www.uaf.edu/geology/ (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. 178)

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. 136)

General Education Requirements

Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

NRM F303X Environmental Ethics and Actions 3

Select one from the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F103X</td>
<td>Basic General Chemistry and Survey of Organic Chemistry and Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I and General Chemistry II</td>
<td>3</td>
</tr>
</tbody>
</table>

B.A. Degree Requirements

Complete the B.A. degree requirements. (p. 141)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>or GEOS F120X</td>
<td>Glaciers, Earthquakes and Volcanoes: Past, Present and Future</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
<td>4</td>
</tr>
<tr>
<td>or GEOS F106X</td>
<td>Life in the Age of Dinosaurs</td>
<td>4</td>
</tr>
</tbody>
</table>

Concentrations

Select one from the following concentrations: 31-49

- Earth Systems Science
- Geological Hazards and Mitigation
- Secondary Education

Total Credits 50-68

Concentrations

EARTH SYSTEMS SCIENCE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<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>GEOS F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one course from each of the following areas: 9-12

- Earth Systems

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG F101X</td>
<td>Expedition Earth: Introduction to Geography</td>
<td>4</td>
</tr>
<tr>
<td>MSL F111X</td>
<td>The Oceans</td>
<td>4</td>
</tr>
<tr>
<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F175X</td>
<td>Introduction to Astronomy</td>
<td>4</td>
</tr>
</tbody>
</table>

- Earth Materials

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F213</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F262</td>
<td>Rocks and Minerals</td>
<td>4</td>
</tr>
</tbody>
</table>

- Geospatial Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F338</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F225</td>
<td>Field and Computer Methods in Geology and Photogeology</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one course from any two of the following areas: 6-7

- Weather and Climate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
<td>4</td>
</tr>
<tr>
<td>GEOG F307</td>
<td>Weather and Climate</td>
<td>4</td>
</tr>
</tbody>
</table>

- Natural Resources

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F302</td>
<td>Geography of Alaska</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F332</td>
<td>Ore Deposits and Structure</td>
<td>4</td>
</tr>
</tbody>
</table>

- Geoscience

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F309</td>
<td>Tectonics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td>4</td>
</tr>
</tbody>
</table>

- Geobiology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F485</td>
<td>Mass Extinctions, Neocatastrophism and the History of Life</td>
<td>4</td>
</tr>
</tbody>
</table>
GEOS F486  Vertebrate Paleontology
9 additional credits at the F300 level or above 1

Total Credits  34-38

1  Fulfills the baccalaureate capstone requirement.

GEOLOGICAL HAZARDS AND MITIGATION
As part of the general education requirements, complete:

COMM F300X  Communicating Ethics  3
SOC F100X  Individual, Society and Culture  3

As part of the B.A. requirements, complete:

STAT F200X  Elementary Probability and Statistics  3

Program Requirements
ED F486  Media Literacy  3
ENGL F314  Technical Writing  3
GEOG F483  Research Design, Writing and Presentation Methods 1

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

Select 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
GEOG F225  Field and Computer Methods in Geology and Photogeology

Weather and Climate
ATM F101X  Weather and Climate of Alaska
GEOS F307  Weather and Climate

Select two courses from one of the following specialized areas: 6

Mitigation
HSEM F412  Emergency Planning and Preparedness
HSEM F423  Disaster Response Operations and Management

Communications
COMM F335  Organizational Communication
COMM F353  Conflict, Mediation and Communication
COMM F441  Persuasion

SECONDARY EDUCATION
As part of the general education requirements, complete:

GEOG F101X  Expedition Earth: Introduction to Geography  3

Program Requirements
PSY F101X  Introduction to Psychology  3

GEOS F262  Rocks and Minerals  3
GEOS F315  Paleobiology and Paleontology  4
GEOS F475  Presentation Techniques in the Geosciences  2

GEOS F497  Individual Study 1

MSL F111X  The Oceans  4

PHYS F175X  Introduction to Astronomy  4

Select one course from each of the following areas: 14-17

Landform Analysis
GEOG F111X  Earth and Environment: Elements of Physical Geography

Geospatial Sciences
GEOS F225  Field and Computer Methods in Geology

GEOS F338  Introduction to Geographic Information Systems

Weather and Climate
ATM F101X  Weather and Climate of Alaska
GEOS F307  Weather and Climate

Natural Resources
GEOS F302  Geography of Alaska
GEOS F332  Ore Deposits and Structure

Evolutionary Processes
GEOS F309  Tectonics

GEOS F485  Mass Extinctions, Neocatastrophism and the History of Life

GEOS F486  Vertebrate Paleontology

Minor in secondary education (p. 185)  16

Additional requirements in secondary education licensure program (p. 185)  19

Total Credits  72-75

1  Fulfills the baccalaureate capstone requirement.

Note: We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in your undergraduate degree program, so that you can be appropriately advised of the state of Alaska requirements for teacher licensure.

Economics
School of Management
Department of Economics
907-474-7461
www.uaf.edu/som/degrees/undergraduate/econ/ (http://www.uaf.edu/som/degrees/undergraduate/econ)
B.A., B.B.A. Degrees
These programs are currently suspended.
Minimum Requirements for Degrees: 120 credits
Economics is the study of social activities concerned with the production, distribution and consumption of goods and services. Nearly all social phenomena and problems have economic aspects, and therefore, knowledge of economic systems and their relations with each other is essential to an understanding of the complex world in which we live.

The department has three undergraduate instructional goals:
1. to provide students with basic tools of analysis and the factual, statistical and descriptive materials they will need to perform their duties as citizens;
2. to introduce economics majors to the various fields of economics to prepare them for positions in business and government and for graduate study; and
3. to offer a course of study suitable for a minor in economics.

Degrees
• B.A., Economics (p. 180) — This program is currently suspended.
• B.B.A., Economics (p. 180) — This program is currently suspended.

Minor
• Minor, Economics (p. 180) — This program is currently suspended.

B.A., Economics
THIS PROGRAM IS CURRENTLY SUSPENDED.
Minimum Requirements for Degrees: 120 credits
Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)
General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:
MATH F230X Calculus Essentials with Applications 3

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)
As part of the B.A. degree requirements, complete:
ECON F201X Principles of Economics I: Microeconomics 3
ECON F202X Principles of Economics II: Macroeconomics 3
MATH F122X Precalculus for Business and Economics 3
Political science elective 3

Program Requirements
ACCT F261X Principles of Financial Accounting 3
ECON F227 Introductory Statistics for Economics and Business 3
ECON F321 Intermediate Microeconomics 3
ECON F324 Intermediate Macroeconomics 3
ECON F327 Intermediate Econometrics for Forecasting and Business 3
ECON F463 International Economics 3
Economics electives at the F300 level or above 1 18

Total Credits 51

1 Up to 6 credits of the following courses may be included: BA F325, BA F343 and BA F360. At least 6 credits of electives must be courses designated writing-intensive (W).

B.B.A., Economics
This program is currently suspended.
Minimum Requirements for Degrees: 120 credits
Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)
General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:
MATH F230X Calculus Essentials with Applications 3

B.B.A. Degree Requirements
Complete the B.B.A. degree requirements. (p. 146)
As part of the Common Body of Knowledge, complete:
AIS F310 Management of Information Systems (as part of the Common Body of Knowledge) 3

Program Requirements
ECON F321 Intermediate Microeconomics 3
ECON F324 Intermediate Macroeconomics 1 3
ECON F327 Intermediate Econometrics for Forecasting and Business 3
ECON F350 Money and Banking 1 3
ECON F463 International Economics 3
ECON F409 Industrial Organization and Public Policy 3
or ECON F420 Labor Markets and Public Policy
ECON F434 Environmental Economics 3
or ECON F439 Energy Economics
Minor complex (optional) or free electives to meet minimum credits required

Total Credits 33

1 If not taken in the B.B.A. Common Body of Knowledge (CBK).

Note: At least 6 credits in the major must be courses designated writing-intensive (W).

Minor, Economics
Minimum Requirements for Minor: 18 credits
Education

School of Education
907-474-7341
www.uaf.edu/soe/ (http://www.uaf.edu/educ)

B.A. Degree and Postbaccalaureate Licensure

Minimum Requirements for Degree: 121-128 credits
Postbaccalaureate secondary licensure (Grades 7-12): 31 credits
Music Education: 33 credits (See the B.M. in Music Education (p. 221)).
Art K-12 licensure: 34 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 report.

The 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 bachelor's degrees in elementary education and secondary education; and postbaccalaureate programs are offered in elementary education, secondary education, counseling and special education.

The 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, school counselors and special education teachers. 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 supports 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 Certification and Advising Office.

Candidates for all School of Education programs are required to have a laptop computer and iPad. Laptops may be of any type but must have capacities that enable candidates to meet School of Education requirements. Laptop and iPad requirements and purchase information can be viewed by accessing the “Technology Requirement” link at the website of the School of Education, www.uaf.edu/soe/ (http://www.uaf.edu/educ). If you have questions about how a laptop or iPad purchase will fit in with your current financial aid package, please contact the UAF Financial Aid Office.

Licensure Information

UAF education programs are approved by the Alaska State Board of Education and accredited by the National Council for the Accreditation of 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. 181)
• B.A. Degree, Secondary Education (7-12) (p. 183)

Minors

• Minor, General Education (p. 185)
• Minor, Elementary Education (p. 185)
• Minor, Secondary Education (p. 185)

Licensure

• K-12 Art Licensure (p. 184)
• Secondary Postbaccalaureate Licensure Program (p. 185)

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 $150 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 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 5014 or 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 year-long internship in a classroom with elementary 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 August 1st (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 5014 or 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: 128 credits

Students must earn a C grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>ANTH F100X</td>
<td>Individual, Society and Culture</td>
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<td>HIST F100X</td>
<td>Modern World History</td>
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<td>ECON F100X</td>
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<td>MATH F122X</td>
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<tr>
<td>or MATH F151X</td>
<td>Economics</td>
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<tr>
<td>or MATH F151X</td>
<td>College Algebra for Calculus</td>
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<tr>
<td>or BIOL F103X</td>
<td>Biology and Society</td>
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<tr>
<td>or BIOL F104X</td>
<td>Natural History of Alaska</td>
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<tr>
<td>CHEM F100X</td>
<td>Chemistry in Complex Systems</td>
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<tr>
<td>or PHYS F115X</td>
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B.A. Degree and Program Requirements

Mathematics Requirements

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<tr>
<td>MATH F211</td>
<td>Mathematics for Elementary School</td>
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<tr>
<td>Teachers</td>
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<tr>
<td>MATH F212</td>
<td>Mathematics for Elementary School</td>
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<td>Teachers II</td>
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</table>

Science Requirement

Select one from the following:

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</thead>
<tbody>
<tr>
<td>ATM F101X</td>
<td>Weather and Climate of Alaska</td>
<td>4</td>
</tr>
</tbody>
</table>
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**Transition/Admission Requirements**

Declaring a B.A. major in secondary 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. 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.

Students must submit the following information to the School of Education by February 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 August 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, experiences which have prepared candidate for teaching.
4. Official copies of ACT or SAT scores.
5. Alaska Passing scores from the Praxis I or Praxis Core ASE exams in reading, writing and math.
6. Alaska Passing scores from the Praxis II in the relevant content Praxis II Subject test for each content area the applicant expects to teach. Applicants applying to teach a World Language are

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, economics, English, French, German, history, mathematics, political science or Spanish.

**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, economics, English, French, German, history, mathematics, political science or Spanish.
required to submit Praxis II scores in the target language AND for the ACTFL Oral Proficiency Interview and Writing Test; Applicants must meet the Advanced Low rating for both tests.

7. Extemporaneous writing sample. Contact the School of Education advising office for date, time and location information.

8. All applicants will be required to interview with secondary faculty as part of the admission process.

To review the application review process, acceptance to the program information, and professional field experience, please refer to the secondary post-baccalaureate licensure program catalog information section.

Minimum Requirements for Degree: 121 credits

Students must earn a C grade or better in each course.

General University Requirements
Complete the general university requirements (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree and Major Requirements
Complete the B.A. degree requirements. (p. 141)

Education Requirements
EDSC F110 Becoming a Middle/High School Teacher 1
EDSC F407 Developing Literacy in the Content Areas 3
EDSC F458 Classroom Organization and Management 3
EDSC F205 or EDSC F415 Introduction to Secondary Education or Classroom Organization and Management 3
Select one from the following: 3
EDSC F414 Learning, Development and Special Needs Instruction
EDSE F422 Curriculum, Management and Strategies II: High Incidence
EDSE F482 Inclusive Classrooms for All Children

Professional Internship Year with Integrated Coursework
EDSC F402 Methods of Teaching in the Secondary School 3
Select one from the following: 3
EDSC F432 English/Language Arts Secondary Instruction and Assessment
EDSC F433 Mathematics Secondary Instruction and Assessment
EDSC F434 Science Secondary Instruction and Assessment
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

Total Credits 29-35

1 Candidates must take the section or course that corresponds with their major teaching content area.

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. 185), 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.

Program Requirements

Minimum Requirements for Licensure: 34 credits

ED F449 Elementary Art Methods 3
ED F452/ART F458 Elementary Internship 3
ED F453/ART F459 Secondary Internship 3
EDSC F402 Methods of Teaching in the Secondary School 3
EDSC F414 Learning, Development and Special Needs Instruction 3
or EDSE F422  Curriculum, Management and Strategies II: High Incidence
or EDSE F482  Inclusive Classrooms for All Children
EDSC F415  Foundations of Modern Educational Practice 3
or EDSC F205  Introduction to Secondary Education
EDSC F436  Art Secondary Instruction and Assessment 3
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 F458  Classroom Organization and Management 3
PSY F240  Psychology of Development 3
or PSY F245  Child Development

Total Credits 34

**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 F344 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 licensure program available on the UAF campus.

Minimum Requirements for Minor: 19 credits

Students must earn a C grade or better in each course.

ED F110  Becoming a Teacher in the 21st Century 1
ED F201  Introduction to Education 3
ED F204  Literature for Children 3
ED F330  Assessment of Learning 3
ED F344  Foundations of Literacy Development 3
ED F350  Communication in Cross-Cultural Classrooms 3
or ANS/ED F420  Alaska Native Education
EDSE F316  Introduction to Special Education for Elementary Classroom Teachers 3

Total Credits 19

**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.

ED F110  Becoming a Teacher in the 21st Century 1
ED F201  Introduction to Education 3
ED F350  Communication in Cross-Cultural Classrooms 3

Total Credits 16

**Secondary Postbaccalaureate Licensure Program**

Program delivery 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 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.
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 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 Admissions and 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.

Admissions 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. Students take their courses at the 400 level and will NOT be able to apply these courses towards a Master of Education degree.

Submit the following information 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.

Submit the following information to the School of Education:

1. 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.
2. A vitae/resume.
3. Three current letters of reference that address qualifications and potential as a teacher.
4. Extemporaneous writing sample. Contact the School of Education Advising Office for the date, time and location information.
5. Alaska Passing scores from the Praxis I or Praxis Core ASE exam in reading, writing and mathematics.
6. Academic content testing
   a. Content area exams: Candidates must submit a score report from the relevant content knowledge Praxis II Subject test for each content area the applicant expects to reach. The scores must meet the score set by the State of Alaska (https://education.alaska.gov/TeacherCertification/). In addition, world language applicants must complete the world language exams.
   b. World language exams: Applicants applying to teach a world language are required to submit Praxis II scores in the target language AND are required to submit scores for the ACTFL Oral Proficiency Interview (OPIc) Test. Applicants must meet the Advanced Low rating for both tests (www.languagetesting.com
Developing Literacy in the Content

3

Social Studies Secondary Instruction

Technology Applications in Education I

Secondary Teaching: School Internship

Mathematics Secondary Instruction

Multicultural Education and School-

1

World Language Secondary Instruction

Following are specific criteria for entry to the secondary teaching internship:

• successful completion of summer program courses;

Minimum Requirements for Licensure: 31 credits

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<thead>
<tr>
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<tbody>
<tr>
<td>EDSC F402</td>
<td>Methods of Teaching in the Secondary School</td>
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<tr>
<td>EDSC F407</td>
<td>Developing Literacy in the Content Areas</td>
<td>3</td>
</tr>
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<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>
<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>
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<td>EDSC F457</td>
<td>Multicultural Education and School-Community Relations</td>
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<tr>
<td>EDSC F471</td>
<td>Secondary Teaching: School Internship I and Seminar</td>
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<td>Mathematics Secondary Instruction and Assessment</td>
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<td>EDSC F434</td>
<td>Science Secondary Instruction and Assessment</td>
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<td>Social Studies Secondary Instruction and Assessment</td>
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<td>EDSC F436</td>
<td>Art Secondary Instruction and Assessment</td>
</tr>
<tr>
<td>EDSC F437</td>
<td>World Language Secondary Instruction and Assessment</td>
</tr>
</tbody>
</table>

Total Credits: 31

1 Candidates must take the section or course that corresponds with their major teaching content areas.

The UAF 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.

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 the potential for successful completion.

Following are specific criteria for entry to the secondary teaching internship:

• 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 payable to the School of Education by June 1 (this fee is nonrefundable once submitted to the state). The School of Education provides these materials, which will then be submitted to the State of Alaska for a criminal background check.

APPLICATION REVIEW PROCESS

Applications are due March 1 (summer or fall admissions) and Oct. 15 (spring admissions), and are reviewed thereafter for admission. A candidate may be admitted, not admitted, or admitted with stipulations. Stipulations are specified when additional development in a particular area(s) is needed before beginning a secondary postbaccalaureate program.

The UAF School of Education coordinates with appropriate academic departments the review and evaluation of the candidate’s qualifications, professional experiences and academic performance based on the contents of his/her application. The secondary postbaccalaureate program is a selective teacher education program. A comprehensive system including multiple measures is used to assess personal characteristics, communication skills and basic skills of candidates preparing to teach. Multiple assessment measures include a review of transcripts, content area strengths and/or Praxis II scores, personal statement and/or writing proficiency exams, Praxis I scores and letters of reference. A personal interview will be required as part of the admission process.

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 the potential for successful completion.

Following are specific criteria for entry to the secondary teaching internship:

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Minimum Requirements for Licensure: 31 credits

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<td>EDSE F422</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
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<td>EDSE F482</td>
<td>Inclusive Classrooms for All Children</td>
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Select one from the following: 1

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<tr>
<td>EDSC F432</td>
<td>English/Language Arts Secondary Instruction and Assessment</td>
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<td>EDSC F433</td>
<td>Mathematics Secondary Instruction and Assessment</td>
</tr>
<tr>
<td>EDSC F434</td>
<td>Science Secondary Instruction and Assessment</td>
</tr>
<tr>
<td>EDSC F435</td>
<td>Social Studies Secondary Instruction and Assessment</td>
</tr>
<tr>
<td>EDSC F436</td>
<td>Art Secondary Instruction and Assessment</td>
</tr>
<tr>
<td>EDSC F437</td>
<td>World Language Secondary Instruction and Assessment</td>
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</table>

Total Credits: 31

1 Candidates must take the section or course that corresponds with their major teaching content areas.
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.

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 Exam 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, open and supportive. The BSEE 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 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. 188)

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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

CHEM F105X and CHEM F106X or PHYS F213X

MATH F251X Calculus I

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)

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

EE F102 Introduction to Electrical and Computer Engineering

EE F203 Electrical Engineering Fundamentals I

EE F204 Electrical Engineering Fundamentals II

EE F303 Electrical Machinery

EE F311 Applied Engineering Electromagnetics

EE F331 High-Frequency Lab

EE F333 Physical Electronics

EE F334 Electronic Circuit Design
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<td>Digital Systems Analysis and Design</td>
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<tr>
<td>EE F353</td>
<td>Circuit Theory</td>
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<td>EE F354</td>
<td>Engineering Signal Analysis</td>
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<td>EE F471</td>
<td>Fundamentals of Automatic Control</td>
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<td>ES F101</td>
<td>Introduction to Engineering</td>
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<td>ES F201</td>
<td>Computer Techniques</td>
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<td>ES F208</td>
<td>Mechanics</td>
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<td>ESM F450</td>
<td>Economic Analysis and Operations</td>
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<td>MATH F253X</td>
<td>Calculus III</td>
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<td>MATH F302</td>
<td>Differential Equations</td>
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Approved EE elective 3-4
Approved EE design elective 3-4

Select one from the following approved engineering science electives:

- ES F331 Mechanics of Materials
- ES F341 Fluid Mechanics
- ES F346 Basic Thermodynamics
- ME F334 Elements of Material Science/Engineering

Approved mathematics elective 1 3

Capstone Requirement
Complete the baccalaureate capstone requirement as determined by the program. 2

Fundamentals of Engineering (FE) Examination
Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska

Concentrations
Select one from the following concentrations: Communications Computer Engineering Power and Control

Total Credits: 107-110

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**

- EE F412 Electromagnetic Waves and Devices 3
- EE F432 Electromagnetics Laboratory 1
- EE F461 Communication Systems 4

Select one from the following approved engineering science electives:

- ES F331 Mechanics of Materials
- ES F341 Fluid Mechanics
- ES F346 Basic Thermodynamics

### 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. 190)

**Minor**

- Minor, English (p. 191)
**B.A., English**

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 136)

**General Education Requirements**
Complete the general education requirements. (p. 139)

**B.A. Degree Requirements**
Complete the B.A. degree requirements. (p. 141)

**Program Requirements**

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<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>
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<td>ENGL F306</td>
<td>Survey of American Literature: Beginnings to the Civil War</td>
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<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>
<td>ENGL F309</td>
<td>Survey of British Literature: Romantic Period to the Present</td>
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<td>ENGL F422</td>
<td>Shakespeare: History Plays and Tragedies</td>
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<tr>
<td>ENGL F425</td>
<td>Shakespeare: Comedies and Nondramatic Poetry</td>
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<td>ENGL F317</td>
<td>Traditional English Grammar</td>
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<td>ENGL F318</td>
<td>Modern English Grammar</td>
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<tr>
<td>ENGL F462</td>
<td>Applied English Linguistics</td>
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<td>ENGL F472</td>
<td>History of the English Language</td>
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<td>ENGL F333</td>
<td>Women's Literature</td>
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<td>ENGL F340</td>
<td>Contemporary Native American Literature</td>
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<td>ENGL F341</td>
<td>Contemporary Alaska Native Literature</td>
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<td>ENGL F347</td>
<td>Voices of Native American Peoples</td>
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<td>ENGL F349</td>
<td>Narrative Art of Alaska Native Peoples (in English Translation)</td>
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<td>ENGL F360</td>
<td>Multiethnic Literatures of the United States</td>
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<td>ENGL F380</td>
<td>Topics in Colonial and Postcolonial Literature</td>
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<tr>
<td>ENGL F433</td>
<td>Women, Gender and Sexuality in Language, Literature and Culture</td>
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<td>ENGL F449</td>
<td>Northern and Environmental Literature</td>
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<tr>
<td>ENGL F410</td>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>ENGL F415</td>
<td>Studies in 17th- and 18th-Century British Literature</td>
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<tr>
<td>ENGL F420</td>
<td>Studies in Medieval and 16th-Century British Literature</td>
<td></td>
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<tr>
<td>ENGL F440</td>
<td>Studies in 20th- and 21st-Century British Literature</td>
<td></td>
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<tr>
<td>ENGL F450</td>
<td>Studies in 19th-Century British Literature</td>
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<tr>
<td>ENGL F455</td>
<td>Studies in 20th- and 21st-Century American Literature</td>
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<tr>
<td>ENGL F460</td>
<td>Studies in Comparative/World Literature</td>
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Select one from the following: 3

<table>
<thead>
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<td>ENGL F427</td>
<td>Topics in Film Studies</td>
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<td>ENGL F435</td>
<td>Authors</td>
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<tr>
<td>ENGL F465</td>
<td>Genre</td>
<td></td>
</tr>
<tr>
<td>ENGL F482</td>
<td>Topics in Language and Literature</td>
<td></td>
</tr>
<tr>
<td>ENGL F485</td>
<td>Teaching Composition in the Schools</td>
<td></td>
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Three ENGL F300- and ENGL F400-level courses (at least one at the F400 level) 9

Complete the baccalaureate capstone requirement as determined by the program.

Total Credits 36

**REQUIREMENTS FOR ENGLISH TEACHERS (GRADES 7-12)**

Please ask your advisor for an advising sheet for teaching majors. We strongly recommend that prospective secondary English 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. They will apply for admission to the UAF School of Education’s postbaccalaureate one-year intensive teacher preparation program during their senior year.

Complete all the requirements for the English B.A. degree.

<table>
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<tr>
<td>ED F486</td>
<td>Media Literacy</td>
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<td>ENGL/FL F200X</td>
<td>World Literature</td>
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<td>ENGL F317</td>
<td>Traditional English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL F318</td>
<td>Modern English Grammar</td>
<td></td>
</tr>
<tr>
<td>ENGL F472</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
<tr>
<td>A writing course — see list of approved electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Two multicultural literature courses, including one Alaska Native literature course, from list of approved electives</td>
<td>6</td>
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</table>

Total Credits 27

**Note:** The above courses can also be used as humanities electives for B.A. degree requirements. If ENGL F200X/FL F200X or LING F101X is used to meet general education requirements, it will not meet the B.A. humanities electives requirement.

**Minor, Creative Writing**

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>ENGL F410</td>
<td>Studies in American Literature to 1900</td>
<td>3</td>
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</tbody>
</table>
ENGL F270X Introduction to Creative Writing 3

Select two from the following: 6

ENGL F375 Intermediate Creative Writing: Fiction
ENGL F376 Intermediate Creative Writing: Poetry
ENGL F377 Intermediate Creative Writing: Nonfiction

Select two from the following: 6

ENGL F470 Topics in Creative Writing
ENGL F471 Undergraduate Writers’ Workshop
ENGL F488 Dramatic Writing

Total Credits 15

Minor, English

Minimum Requirements for Minor: 18 credits

Select two from the following: 6

ENGL F301 Continental Literature in Translation: The Ancient World
or 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

ENGL F422 Shakespeare: History Plays and Tragedies 3
or ENGL F425 Shakespeare: Comedies and Nondramatic Poetry

ENGL electives at the F300 or F400 level 9

Total Credits 18

Environmental Politics

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. 191)
• B.A., Yup’ik Eskimo (p. 192)

Minor

• Minor, Eskimo (p. 192)

B.A., Inupiaq Eskimo

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.
General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

Program Requirements

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<td>ANL F315</td>
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<tr>
<td>ESK F111X</td>
<td>Elementary Inupiaq</td>
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<td>LING F101X</td>
<td>Nature of Language</td>
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<tr>
<td>or ANS F320</td>
<td>Language and Culture in Alaska</td>
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Select three from the following: 9

<table>
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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ANL F287</td>
<td>Teaching Methods for Alaska Native Languages</td>
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<tr>
<td>ANL F316</td>
<td>Alaska Native Languages: Indian Languages</td>
<td>3</td>
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<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>
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<tr>
<td>ESK F417</td>
<td>Advanced Inupiaq</td>
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<td>HIST F110</td>
<td>History of Alaska Natives</td>
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<td>LING/ED F303</td>
<td>Language Acquisition</td>
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</tr>
<tr>
<td>LING F318</td>
<td>Introduction to Phonetics and Phonology</td>
<td>3</td>
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<td>LING F320</td>
<td>Introduction to Morphology</td>
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<td>LING F410</td>
<td>Theory and Methods of Second Language Teaching</td>
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<td>LING F430</td>
<td>Historical Linguistics</td>
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<td>Language Policy and Planning</td>
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<td>MUS F223X</td>
<td>Alaska Native Music</td>
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<td>PS F263</td>
<td>Alaska Native Politics</td>
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Yup'ik course or approved course

Total Credits: 34

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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

Program Requirements

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<tr>
<td>ESK F101X</td>
<td>Elementary Central Yup'ik</td>
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<td>ESK F201</td>
<td>Intermediate Central Yup'ik</td>
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<td>Nature of Language</td>
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<tr>
<td>or ANS F320</td>
<td>Language and Culture in Alaska</td>
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Select two from the following: 6

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<td>3</td>
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<tr>
<td>ANTH F242</td>
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<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>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>
</tr>
<tr>
<td>PS F263</td>
<td>Alaska Native Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

Inupiaq Eskimo course or approved course

Total Credits: 34

1. Fulfills the baccalaureate capstone requirement.

Minor, Eskimo

Minimum Requirements for Minor: 15 credits

Complete Eskimo electives 15

Total Credits: 15

Film and Performing Arts

College of Liberal Arts
Department of Theatre and Film
907-474-6590
www.uaf.edu/theatrefilm/ (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. 193)

Minor
- Minor, Film Studies (p. 194)
- Minor, Theatre (p. 194)

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.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

Program Requirements

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

Total Credits: 39

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.

Concentrations

FILM

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLPA/JRN/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 for Digital Cinema</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F260/JRN F290</td>
<td>Digital Video Editing</td>
<td>3</td>
</tr>
<tr>
<td>FLPA/JRN F280</td>
<td>Video Storytelling</td>
<td>3</td>
</tr>
<tr>
<td>FLPA F289 and FLPA F389</td>
<td>and Reel Workshop/Review</td>
<td>0</td>
</tr>
<tr>
<td>FLPA F489 and FLPA F489</td>
<td>and Reel Workshop/Review</td>
<td>0</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>
</tbody>
</table>

Select one from the following: 3

- FLPA F334 | Movies and Films: Watching and Analyzing |
- FLPA/ANS F381 | Alaska Natives in Film |
- FLPA/ENGL F488 | Dramatic Writing |

or approved FLPA elective

Select two from the following: 6

- FLPA F310 | Acting for the Camera |
- FLPA F358 | Lights, Camera, Audio! |
- FLPA/ART F371 | Digital Imaging |
- FLPA F418 | Internship in Film Production |
- FLPA F458 | SFX Up Your Video |
- FLPA/F475 | Digital Video Compositing |
- FLPA/ART/ANTH F460 | Cross-Cultural Filmmaking |
- FLPA/ART F472 | 3D Animation |
- FLPA/JRN F480 | Documentary Filmmaking |
- FLPA F481 | Advanced Topics in Film or Stage Production |
- FLPA F498 | Undergraduate Research |
- FLPA F499 | Thesis Project 1 |

or approved FLPA elective

Total Credits: 30

1 Fulfills the baccalaureate capstone requirement.

THEATRE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLPA F190 and FLPA F191</td>
<td>Audition or Portfolio Review Participation and Audition or Portfolio Review Participation</td>
<td>0</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 and FLPA F291</td>
<td>Audition or Portfolio Review Participation II and Audition or Portfolio Review Participation II</td>
<td>0</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

Select four from the following: 12

- 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
- FLPA F481 Advanced Topics in Film or Stage Production
- FLPA/ENGL F488 Dramatic Writing
- FLPA F498 Undergraduate Research
- FLPA F499 Thesis Project
  or approved FLPA elective

Total Credits 30

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

- FLPA/ENGL F217X Introduction to the Study of Film 3
- FLPA/ART F231 Previsualization and Preproduction for Digital Cinema 3
- FLPA F271 Film Set Production I 3
- or FLPA/JRN F280 Video Storytelling

Department-approved electives 9

Total Credits 18

**Minor, Theatre**

Minimum Requirements for Minor: 18 credits

- FLPA F121 Fundamentals of Acting 3
- FLPA F215X Dramatic Literature and History 3
- FLPA F241 Basic Stagecraft 4

Department-approved electives 8

Total Credits 18

**Fisheries**

School of Fisheries and Ocean Sciences
Fisheries Program
907-474-7289
www.sfos.uaf.edu/academics/ (http://www.sfos.uaf.edu/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. 194)
- B.S., Fisheries and Ocean Sciences (p. 195)

**Minor**

- Minor, Fisheries (p. 196)

**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.

**General University Requirements**

Complete the general university requirements. (p. 136)

**General Education Requirements**

Complete the general education requirements. (p. 139)

**B.A. Degree and Program Requirements**

Complete the B.A. degree requirements. (p. 141)

**Program Requirements**

ENGL F314 Technical Writing 3
## Concentrations

### Fisheries Business and Social Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F403</td>
<td>Political Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>or ANTH F428</td>
<td>Ecological Anthropology and Regional Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>or BA F343</td>
<td>Principles of Marketing</td>
<td></td>
</tr>
<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
<td>3-4</td>
</tr>
<tr>
<td>or BA F330</td>
<td>The Legal Environment of Business</td>
<td></td>
</tr>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>FISH F340</td>
<td>Seafood Business</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HIST F411</td>
<td>Environmental History</td>
<td></td>
</tr>
<tr>
<td>NRM F407</td>
<td>Environmental Law</td>
<td></td>
</tr>
<tr>
<td>NRM F430</td>
<td>Resource Management Planning</td>
<td></td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F447</td>
<td>U.S. Environmental Politics</td>
<td></td>
</tr>
<tr>
<td>PS F454</td>
<td>International Law and the Environment</td>
<td></td>
</tr>
<tr>
<td>PS F455</td>
<td>Political Economy of the Global Environment</td>
<td></td>
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<tr>
<td>PS F458</td>
<td>Comparative Environmental Politics</td>
<td></td>
</tr>
</tbody>
</table>

### RURAL AND COMMUNITY DEVELOPMENT

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
<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 for Rural Communities</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 F475</td>
<td>Rural Development Senior Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 24-25

1 Students who take ANTH F403 or ANTH F428 should be aware that these two courses require additional prerequisites that are not part of the Bachelor of Arts in fisheries degree program.

## 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.

### General University Requirements

Complete the general university requirements. (p. 136)

### General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>ECON F201X</td>
<td>Principles of Economics I: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>or ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
<td></td>
</tr>
<tr>
<td>MATH F230X</td>
<td>Calculus Essentials with Applications</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH F251X</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>
B.S. Degree Requirements

Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree requirements, complete:

CHEM F105X General Chemistry I 4
CHEM F106X General Chemistry II 4
STAT F200X Elementary Probability and Statistics 3

Program Requirements

BIOL F260 Principles of Genetics 4
BIOL F371 Principles of Ecology 4
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 F315 Freshwater Fisheries Techniques 3
or FISH F414 Field Methods in Marine Ecology and Fisheries
or MSL F450 Marine Biology and Ecology Field Course
or MSL F456 Kelp Forest Ecology
FISH F490 Experiential Learning – Fisheries Internship 1

MSL F211 Introduction to Marine Science I 3
MSL F212 Introduction to Marine Science II 3
MSL F213L Marine Science Laboratory 1
PHYS F103X College Physics I 4
or PHYS F115X Physical Sciences
or PHYS F211X General Physics I
STAT F401 Regression and Analysis of Variance 4
or STAT F402 Scientific Sampling
or MATH F252X Calculus II

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).

Concentrations

Complete one from the following concentrations: 23

Fisheries Science
Ocean Sciences

Total Credits 90-91

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.

Concentrations

**FISHERIES SCIENCE**

FISH F261 Introduction to Fisheries Utilization 3
FISH F288 Fish and Fisheries of Alaska 3
FISH F411 Human Dimensions of Environmental Systems 1
or GEOG F312 People, Places, and Environment: Principles of Human Geography

or SOC F440  Environmental Sociology
FISH F425 Fish Ecology 3
or FISH F426 Behavioral Ecology of Fishes
or FISH F428 Physiological Ecology of Fishes
or FISH F433 Pacific Salmon Life Histories
FISH F427 Ichthyology 4
FISH F487 Fisheries Management 2 3

Complete 4 credits of electives from chemistry, geology or physics 4

Total Credits 23

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**

MSL F499 Senior Thesis 1 3

Select 20 credits from the following: 20

MSL F215 Marine Geological Drama and Undersea Catastrophes
MSL F216 The Oceans and Global Change
MSL F220 Scientific Diving
MSL F317 Introduction to Marine Mammal Biology
MSL F403 Estuaries Oceanography
MSL F411 Current Topics in Oceanographic Research
MSL F412 Early Life Histories of Marine Invertebrates
MSL F419 Concepts in Physical Oceanography
MSL F421 Field Course in Subtidal Studies
MSL F431 Polar Marine Science
MSL F440 Oceanography for Fisheries
MSL F449 Biological Oceanography
MSL F461 Chemical Oceanography
MSL F463 Chemical Coastal Processes
MSL F467 Introduction to Marine Macroalgae
MSL F492 Seminar

Additional electives to complete minimum credits required.

Total Credits 23

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

FISH F101 Introduction to Fisheries 3
or NRM F101 Natural Resources Conservation and Policy
FISH F288 Fish and Fisheries of Alaska 3
A least 6 additional credit hours designated FISH, with the exception of any FISH F492 courses

**Concentrations**
Select at most 3 credit hours from one of the following concentrations:
- Fisheries Science
- Fisheries Business Administration and Economics
- Fisheries Policy and Rural Development

| Total Credits | 15 |

**Concentrations**

**FISHERIES SCIENCE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BIOL F305</td>
<td>Invertebrate Zoology</td>
</tr>
<tr>
<td>BIOL F310</td>
<td>Animal Physiology</td>
</tr>
<tr>
<td>BIOL F441</td>
<td>Animal Behavior</td>
</tr>
<tr>
<td>BIOL F471</td>
<td>Population Ecology</td>
</tr>
<tr>
<td>BIOL F472</td>
<td>Community Ecology</td>
</tr>
<tr>
<td>BIOL F473</td>
<td>Limnology</td>
</tr>
<tr>
<td>BIOL F476</td>
<td>Ecosystem Ecology</td>
</tr>
<tr>
<td>BIOL F483</td>
<td>Stream Ecology</td>
</tr>
<tr>
<td>NRM F370</td>
<td>Introduction to Watershed Management</td>
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</table>

**FISHERIES BUSINESS ADMINISTRATION AND ECONOMICS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ACCT F261X</td>
<td>Principles of Financial Accounting</td>
</tr>
<tr>
<td>ACCT F262</td>
<td>Principles of Managerial Accounting</td>
</tr>
<tr>
<td>BA F151X</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
</tr>
<tr>
<td>BA F325</td>
<td>Financial Management</td>
</tr>
<tr>
<td>BA F330</td>
<td>The Legal Environment of Business</td>
</tr>
<tr>
<td>BA F343</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
</tr>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
</tr>
<tr>
<td>ECON F335</td>
<td>Intermediate Natural Resource Economics</td>
</tr>
<tr>
<td>ECON F434</td>
<td>Environmental Economics</td>
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</table>

**FISHERIES POLICY AND RURAL DEVELOPMENT**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ANS F350</td>
<td>Cross-Cultural Communication: Alaska Perspectives</td>
</tr>
<tr>
<td>ANS F401</td>
<td>Cultural Knowledge of Native Elders</td>
</tr>
<tr>
<td>ANTH F242</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>ANTH F403</td>
<td>Political Anthropology</td>
</tr>
<tr>
<td>ANTH F428</td>
<td>Ecological Anthropology and Regional Sustainability</td>
</tr>
<tr>
<td>HIST F411</td>
<td>Environmental History</td>
</tr>
<tr>
<td>NRM F407</td>
<td>Environmental Law</td>
</tr>
<tr>
<td>NRM F430</td>
<td>Resource Management Planning</td>
</tr>
<tr>
<td>PS F101</td>
<td>Introduction to American Government and Politics</td>
</tr>
<tr>
<td>PS F447</td>
<td>U.S. Environmental Politics</td>
</tr>
<tr>
<td>PS F454</td>
<td>International Law and the Environment</td>
</tr>
<tr>
<td>PS F455</td>
<td>Political Economy of the Global Environment</td>
</tr>
<tr>
<td>PS F458</td>
<td>Comparative Environmental Politics</td>
</tr>
<tr>
<td>RD F200X</td>
<td>Rural Development in the North</td>
</tr>
<tr>
<td>RD F245</td>
<td>Fisheries and Marine Wildlife Development in Rural Alaska</td>
</tr>
<tr>
<td>RD F265</td>
<td>Perspectives on Subsistence in Alaska</td>
</tr>
<tr>
<td>RD F300</td>
<td>Rural Development in a Global Perspective</td>
</tr>
<tr>
<td>RD F350</td>
<td>Community Research in Indigenous Contexts</td>
</tr>
<tr>
<td>RD F430</td>
<td>Indigenous Economic Development and Entrepreneurship</td>
</tr>
</tbody>
</table>

**Foreign Languages**

College of Liberal Arts
Department of Foreign Languages and Literatures
907-474-7396
[www.uaf.edu/language/](http://www.uaf.edu/language)

**B.A. Degree**

Minimum Requirements for Degree: 120 credits

Language is the embodiment of culture and an expression of a people’s way of thinking, feeling and viewing the world. We have an increasing need to communicate directly with other peoples to achieve mutual understanding. To learn a new language opens new avenues of thought, new modes of expression and new models of understanding. The study of foreign languages and literatures liberates the student from the confines of one culture.

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. 197)

**Minor**
- Minor, Foreign Languages (p. 198)

**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.

**General University Requirements**
Complete the general university requirements. (p. 136)

**General Education Requirements**
Complete the general education requirements. (p. 139)

**B.A. Degree and Program Requirements**
Complete the B.A. degree requirements. (p. 141)

Complete the baccalaureate capstone requirement as determined by the program. ¹
Concentrations

Select one from the following concentrations: 30-33

Two languages
French, German, Russian or Spanish

Total Credits 30-33

1. The baccalaureate capstone requirement for foreign languages may be fulfilled by FREN F431, SPAN F431, JPN F475, RUSS F488, GER F431 or GER F432.

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

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.

Total Credits 33

1. These must include two F400-level courses in the target language taken in residence at UAF.

FRENCH, GERMAN, RUSSIAN OR SPANISH

Target language at the F200 level or above 1

Total Credits 30

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. 211).

Minor, Foreign Languages

Minimum Requirements for Minor: 15 credits

Foreign language credits at the F100 level or above 3

Foreign language credits at the F200 level or above 12

Total Credits 15

General Science

College of Natural Science and Mathematics
Department of Physics
907-474-6108
www.uaf.edu/physics/ (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. 198)

B.S., General Science

Minimum Requirements for Degree: 130 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F115X</td>
<td>Fundamentals of Biology I</td>
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</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>
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<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>MATH F151X</td>
<td>College Algebra for Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH F152X</td>
<td>Trigonometry</td>
<td>3</td>
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<tr>
<td>MATH F251X</td>
<td>Calculus II</td>
<td>4</td>
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<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>
</tbody>
</table>

Select one from the following by the start of the junior year: 3

Two majors

One major and two minors 4

Select one from the following: 20-24

Complete a second major from the following: biological sciences, chemistry, geosciences, physics or mathematics. 5

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. 6

Complete the baccalaureate capstone requirement as determined by the program.

Total Credits 83-87

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.
The framework for the integration of existing and emerging economic and political developments all over the world. Geography also caused environmental hazards, land-use change, regional conflicts, and 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. 200)
- B.S., Geography (p. 200)

Minor

- Minor, Geography (p. 202)
- Minor, Geographic Information Systems (p. 202)

B.A., Geography

Minimum Requirements for Degree: 120 credits

Students must earn a C grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions</td>
<td>3</td>
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B.A. Degree Requirements

Complete the B.A. degree requirements. (p. 141)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</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 F490</td>
<td>Geography Seminar</td>
<td>3</td>
</tr>
<tr>
<td>NRM F338</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
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</table>

Regional Geography

Select two from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>GEOG F302</td>
<td>Geography of Alaska</td>
</tr>
<tr>
<td>GEOG F303</td>
<td>Geography of United States and Canada</td>
</tr>
<tr>
<td>GEOG F305</td>
<td>Geography of Europe</td>
</tr>
<tr>
<td>GEOG F306</td>
<td>Geography of Russia</td>
</tr>
<tr>
<td>GEOG F311</td>
<td>Geography of Asia</td>
</tr>
<tr>
<td>GEOG F410</td>
<td>Geography of the Pacific Rim</td>
</tr>
<tr>
<td>GEOG F427</td>
<td>Polar Geography</td>
</tr>
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</table>

Physical Geography

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>GEOG F307</td>
<td>Weather and Climate</td>
</tr>
<tr>
<td>GEOG F339</td>
<td>Maps and Landscape Analysis</td>
</tr>
<tr>
<td>GEOG F412</td>
<td>Geography of Climate and Environmental Change</td>
</tr>
<tr>
<td>GEOG F418</td>
<td>Biogeography</td>
</tr>
<tr>
<td>GEOG F460</td>
<td>The Dynamic Alaska Coastline</td>
</tr>
</tbody>
</table>

Human Geography

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>GEOG F405</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GEOG F420</td>
<td>Geopolitics of Energy</td>
</tr>
</tbody>
</table>

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.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F303X</td>
<td>Environmental Ethics and Actions</td>
<td>3</td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>
**B.S. Degree Requirements**

Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:

**MATH F230X** Calculus Essentials with Applications 3

or **MATH F251X** Calculus I

**Program Requirements**

**GEOG F101X** Expedition Earth: Introduction to Geography 3

**GEOG F111X** Earth and Environment: Elements of Physical Geography 4

**GEOG F312** People, Places, and Environment: Principles of Human Geography 3

**GEOG F483** Research Design, Writing and Presentation Methods 3

**GEOG F490** Geography Seminar 3

**GEOS F488** Undergraduate Research or **GEOG F300** Internship in Geography 1-3

**NRM F338** Introduction to Geographic Information Systems 3

**Concentrations**

Select one from the following concentrations: 30-56

- Environmental Studies
- Landscape Analysis and Climate Change Studies
- Geospatial Sciences

Total Credits 59-87

---

1 Completion of these three courses will fulfill the baccalaureate capstone requirement.

**Concentrations**

**ENVIRONMENTAL STUDIES**

As part of the general education requirements, complete:

**CHEM F105X** General Chemistry I 4

As part of the B.S. degree requirements, complete:

**BIOL F115X** Fundamentals of Biology I 4

**BIOL F116X** Fundamentals of Biology II 4

**Program Requirements**

**GEOG F207** Research Methods and Statistics in Geography 3

**GEOG F307** Weather and Climate 3

**GEOG F339** Maps and Landscape Analysis 3

**GEOG F483** Research Design, Writing and Presentation Methods 3

Select two from the following: 6

- **GEOG F412** Geography of Climate and Environmental Change
- **GEOG F488** Geographic Assessment and Prediction of Natural Hazards
- **NRM F403** Environmental Decision-Making
- **NRM F407** Environmental Law

Select three from the following: 9-10

- **BIOL F371** Principles of Ecology
- **BIOL/NRM F277** Introduction to Conservation Biology
- **GEOG F418** Biogeography

**GEOG F460** The Dynamic Alaska Coastline

**GEOS F304** Geomorphology

**NRM F380** Soils and the Environment

**NRM F365** Principles of Outdoor Recreation Management

**NRM F370** Introduction to Watershed Management

**NRM F430** Resource Management Planning

**NRM F464** Wilderness Management

**NRM F480** Soil Management for Quality and Conservation

Select one from the following: 3

- **GEOG F309** Digital Cartography and Geovisualization
- **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/GEOG F435** GIS Analysis

Total Credits 45-46

**LANDSCAPE ANALYSIS AND CLIMATE CHANGE STUDIES**

As part of the general education requirements, complete:

**ATM F101X** Weather and Climate of Alaska 4

**PHYS F103X** College Physics I 4

**Program Requirements**

**GEOG F412** Geography of Climate and Environmental Change

or **ATM F456** Climate and Climate Change

**GEOS F304** Geomorphology 3

Select three from the following: 9

- **GEOG F339** Maps and Landscape Analysis
- **GEOG F418** Biogeography
- **GEOG F427** Polar Geography
- **GEOG F460** The Dynamic Alaska Coastline

Select two from the following: 6

- **GEOG F302** Geography of Alaska
- **GEOG F307** Weather and Climate
- **GEOG F478** Ice Age Alaska
- **GEOS F477** Ice in the Climate System

Select two from the following:

- **GEOG F207** Research Methods and Statistics in Geography
- **GEOG F309** Digital Cartography and Geovisualization
- **GEOS F422** Geoscience Applications of Remote Sensing
- **GEOS F458** Applications of GPS and GIS in Geophysics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F435</td>
<td>GIS Analysis</td>
</tr>
</tbody>
</table>

Total Credits 29

**GEOSPATIAL SCIENCES**

**Program Requirements**

Select four from the following: 12-13

- CS F103 Introduction to Computer Programming
- GEOG F207 Research Methods and Statistics in Geography
- GEOG F339 Maps and Landscape Analysis
- GEOS F422 Geoscience Applications of Remote Sensing
- NRM F435 GIS Analysis

Select three from the following: 6-7

- GE F371 Remote Sensing for Engineering
- GE F376 GIS Applications in Geological and Environmental Engineering
- GEOS F309 Digital Cartography and Geovisualization
- GEOS F436 Beyond the Mouse: Computer Programming and Automation for Geoscientists
- GEOS F458 Applications of GPS and GIS in Geophysics
- NRM F369 GIS and Remote Sensing for Natural Resources
- NRM F458 GIS Programming
- NRM F461 Natural Resource Applications of Remote Sensing

Select two from the following: 6

- GEOG F427 Polar Geography
- GEOG F460 The Dynamic Alaska Coastline
- GEOG F478 Ice Age Alaska
- GEOS F304 Geomorphology

Total Credits 24-26

---

**Minor, Geography**

Minimum Requirements for Minor: 16 credits

Students must earn a C grade or better in each course.

- GEOG F101X Expedition Earth: Introduction to Geography 3
- GEOG F111X Earth and Environment: Elements of Physical Geography 4
- GEOG electives 9

Total Credits 16

**Geological 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: 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. 203)

**B.S., Geological Engineering**

Minimum Requirements for Degree: 133 credits

Students must earn a C grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 136)

**General Education Requirements**

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

- CHEM F105X General Chemistry I 4
- CHEM F106X General Chemistry II 4
- MATH F251X Calculus I 4

**B.S. Degree Requirements**

Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:

- MATH F252X Calculus II 4
- PHYS F211X General Physics I 4
- PHYS F212X General Physics II 4

**Program Requirements**

<table>
<thead>
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<td>ES F208</td>
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<td>ES F331</td>
<td>Mechanics of Materials</td>
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<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
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<tr>
<td>ES F346</td>
<td>Basic Thermodynamics</td>
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<td>GE F101</td>
<td>Introduction to Geological Engineering</td>
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<td>GE F261</td>
<td>General Geology for Engineers</td>
<td>3</td>
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<tr>
<td>GE F365</td>
<td>Geological Materials Engineering</td>
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<td>GE F371</td>
<td>Remote Sensing for Engineering</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>
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<tr>
<td>GE F405</td>
<td>Exploration Geophysics</td>
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<td>GE F420</td>
<td>Subsurface Hydrology</td>
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<tr>
<td>GE F480</td>
<td>Senior Design 1</td>
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<td>GEOS F213</td>
<td>Mineralogy</td>
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<tr>
<td>GEOS F214</td>
<td>Petrology and Petrography</td>
<td>4</td>
</tr>
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<td>GEOS F314</td>
<td>Structural Geology</td>
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</tr>
<tr>
<td>GEOS F320</td>
<td>Sedimentology for Geological Engineers</td>
<td>3</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>
</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>
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<tr>
<td>MIN F370</td>
<td>Rock Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MIN F408</td>
<td>Mineral Valuation and Economics</td>
<td>3</td>
</tr>
<tr>
<td>GS F376</td>
<td>Soil Science</td>
<td>3</td>
</tr>
</tbody>
</table>

**Technical Electives**

Highly recommended technical electives:

- CE F341 Environmental Engineering
- CE F344 Water Resources Engineering
- CE F422 Foundation Engineering
- CE F424 Introduction to Permafrost Engineering
- CE F442 Environmental Engineering Design
- CE F603 Arctic Engineering
- ESM F422 Engineering Decisions
- GE F322 Erosion Mechanics and Conservation
- GE F376 GIS Applications in Geological and Environmental Engineering
- GE F384 Engineering Geology of Alaska
- GE F400 Geological Engineering Internship
- GE F422 Soil Physics
- GE F430 Geomechanical Instrumentation
- GE F435 Exploration Design
- GE F440 Slope Stability
- GE F441 Geohazard Analysis
- GE F445 Design of Earth Dams and Embankments
- MIN F443 Principles and Applications of Industrial Explosives
- MIN F482 Computer-Aided Mine Design–VULCAN
- NRM F435 GIS Analysis
- PETE F302 Well Logging
- PETE F407 Petroleum Production Engineering
- PETE F426 Drilling Engineering

**Fundamentals of Engineering (FE) Examination**

Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

Total Credits 105

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 his or her advisor and approved by the department.

**Geoscience**

College of Natural Science and Mathematics
Department of Geosciences
907-766-3670
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.

Concentrations

GEOLOGY

Program Requirements

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM F106X</td>
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<td>PHYS F103X</td>
<td>College Physics I</td>
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<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 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 F315</td>
<td>Paleobiology and Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F322</td>
<td>Stratigraphy and Sedimentation</td>
<td>4</td>
</tr>
<tr>
<td>GEOS F351</td>
<td>Field Geology</td>
<td>8</td>
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<tr>
<td>GEOS F430</td>
<td>Statistics and Data Analysis in Geology</td>
<td>3</td>
</tr>
<tr>
<td>STAT F200X or STAT F300</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete 12 additional credits of upper-division GEOS courses or other upper-division courses approved by the undergraduate advisor including one O (oral-intensive) course from any department

Total Credits 63

GEOS F351 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.

PALEONTOLOGY

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>GEOS F213</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
</tbody>
</table>

1  GEOS F351 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

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 F351</td>
<td>Field Geology</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 Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or STAT F300</td>
<td>Statistics</td>
<td></td>
</tr>
</tbody>
</table>

#### GIS electives

Select at least two of the following: 6-7

- GEOG F309 Digital Cartography and Geovisualization
- GEOS F435 GIS Analysis
- GEOS F458 Applications of GPS and GIS in Geophysics
- NRM F338 Introduction to Geographic Information Systems

Complete 9 additional credits of upper-division GEOS courses or other upper-division courses approved by the undergraduate advisor including one O (oral-intensive) course and one additional W (writing-intensive) course from any department.

Total Credits 69-73

1 GEOS F351 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.

### GEOPHYSICS

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F262</td>
<td>Rocks and Minerals</td>
<td>3</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 F475</td>
<td>Presentation Techniques in the Geosciences</td>
<td>2</td>
</tr>
<tr>
<td>GEOS F477</td>
<td>Ice in the Climate System</td>
<td>3</td>
</tr>
<tr>
<td>GEOS F487</td>
<td>Undergraduate Research</td>
<td>2</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>1</td>
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<tr>
<td>and PHYS F212X</td>
<td>General Physics II</td>
<td>1</td>
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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>
</tbody>
</table>

Select at least three of the following science and engineering electives: 9-12

- ES F331 Mechanics of Materials
- ES F341 Fluid Mechanics
- GEOS F314 Structural Geology
- GEOS F322 Stratigraphy and Sedimentation
- GEOS F422 Geoscience Applications of Remote Sensing
- ME F441 Heat and Mass Transfer
- PHYS F301 Introduction to Mathematical Physics
- PHYS F341 Classical Physics I: Particle Mechanics

Additional upper-division GEOS credits or other upper-division courses as approved by the undergraduate advisor 3
Complete one W (writing-intensive) course approved by the undergraduate advisor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<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>
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</table>

Total Credits: 20

1 Fulfills the baccalaureate capstone requirement.

**Minor, Geophysics**

Minimum Requirements for Minor: 21 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOS F101X</td>
<td>The Dynamic Earth</td>
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<tr>
<td>GEOS F112X</td>
<td>The History of Earth and Life</td>
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<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>
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</table>

Total Credits: 21

**Minor, Geospatial Sciences**

Minimum Requirements for Minor: 19 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</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>
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</table>

Total Credits: 19

**Minor, Paleontology**

Minimum Requirements for Minor: 16-20 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<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 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>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS F486</td>
<td>Vertebrate Paleontology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 16-20

**Global Studies**

College of Liberal Arts
907-474-7231
www.uaf.edu/cla/ (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. 206)**

**Minor, Global Studies**

Minimum Requirements for Minor: 16-18 credits

**Entry-level Course**

Select one from the following: 3

- ANTH F245 Culture and Global Issues
- ENGL F218 Themes in Literature
- ENGL F280 Introduction to Colonial and Postcolonial Literature
- GEOG F203 World Economic Geography
- JUST F201 Dispute Resolution and Restorative Practices
- LING F216X Languages of the World
- PS F202 Democracy and Global Society

**Program Requirements**

Select four from the following with no more than two courses (6 credits) from the same department: 12

- ANTH/RD 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
- COMM F330 Intercultural Communication
- COMM F353 Conflict, Mediation and Communication
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.

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. 207)

### Minor
- Minor, History (p. 208)

### B.A., History

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

#### General University Requirements
Complete the general university requirements. (p. 136)

#### General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:

- **HIST F100X** Modern World History 3

#### B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

#### Program Requirements
Select three from the following: 9

- HIST F101 Western Civilization
- HIST F102X Western Civilization Since 1500
- HIST F121 East Asian Civilization
- HIST F122X East Asian Civilization
- HIST F131 History of the U.S.
- HIST F132X History of the U.S.
- HIST F275 Perspectives on History 3

5 HIST courses at the F300 or F400 level, at least 2 of which must be at the F400 level 15

Of the courses for the major, at least two (at any level) must be taken in each of the following three fields: 1

- United States history
- European history
- Other areas, such as:
  - Northern history (including Alaska)
  - World or non-western (non-U.S., non-European) history
  - Women’s history

- HIST F475 Historiography Capstone 2 3

---

1. Complete a variable credit civic engagement/internship project working collaboratively with one of the faculty in the student’s primary course interest. The number of credits will be determined by the student’s advisor based on the number of hours worked in the nature of the academic component of the internship or project.

### Note:
The Program in Global Studies also strongly encourages students to study abroad for at least one semester, and to work toward fluency in a second language.

Because of the flexibility of the program and the internship requirement, it will be important for students to work closely with an advisor familiar with the program. Please contact the Program Coordinator with any questions you may have about the program.

For more information and advising:
- Peter A. DeCaro
  Program Coordinator
  907-474-6799
  padecaro@alaska.edu

### History

College of Liberal Arts
Department of History
907-474-7126
www.uaf.edu/history/ (http://www.uaf.edu/history)

### B.A. Degree

Minimum Requirements for Degree: 120 credits
Minor, History

Minimum Requirements for Minor: 18 credits

HIST electives at the F300 level or above 6
HIST electives 12
Total Credits 18

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.

Homeland Security and Emergency Management

School of Management
Department of Homeland Security and Emergency Management
907-474-7461
www.uaf.edu/som/degrees/undergraduate/bem/ (http://www.uaf.edu/som/degrees/undergraduate/bem)

B.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 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 and advance their operational understanding of the highly integrated emergency management and homeland security environment of today.

Degree

- B.E.M, Homeland Security and Emergency Management (p. 208)

Minors

- Minor, Emergency Management (p. 209)
- Minor, Military Security Studies (p. 209)


Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

B.E.M. Degree Requirements

Complete the B.E.M. degree requirements. (p. 143)

Program Requirements

Complete major requirements from UAF HSEM lower-division courses, the emergency services A.A.S. degree from UAF or any regionally accredited institution 1

BA F307 Introductory Human Resources Management 3
BA F390 Organizational Theory and Behavior 3
BA F457 Training and Management Development 3
HSEM/ACCT F271 Fiscal Management for Emergency Management Operations 3
Select 12 credits from the following: 12
URSA Any course
HSEM Any course not counted in major requirements
BA F330 The Legal Environment of Business
BA F317 Employment Law
BA F490 Services Marketing
COMM F300X Communicating Ethics
COMM F335 Organizational Communication
COMM F353 Conflict, Mediation and Communication
ECON F201X Principles of Economics I: Microeconomics
ENGL F314 Technical Writing
GEOS F380 Geological Hazards
HSEM F452 Internship in Emergency Management
JUST F222  Research Methods
PS F203  Peace, War and Security
PSY/SOC F250  Introductory Statistics for Social Sciences
STAT F200X  Elementary Probability and Statistics
HSEM F301  Principles of Emergency Management and Homeland Security
HSEM F412  Emergency Planning and Preparedness
HSEM F423  Disaster Response Operations and Management
HSEM F434  All-Hazards Risk Analysis
HSEM F445  Business Continuity and Crisis Management
HSEM F456  Leadership in Dangerous Contexts

Concentrations
Select one from the following concentrations:

- Homeland Security
- Emergency Management
- Fire Administration
- Emergency Medical Management
- Cybersecurity Management

Total Credits 81

1 Complete 33 credits of major requirements from UAF HSEM lower-division courses, the emergency services A.A.S. degree from UAF or any regionally accredited institution within these subject areas: emergency/para-medical, 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.

2 Fulfills the baccalaureate capstone requirement.

Note: Of the above, at least 39 credits must be taken in upper-division (F300-level or higher) courses.

Minor, Emergency Management
Minimum Requirements for Minor: 15 credits
Students must earn a C- grade or better in each course.
HSEM F301  Principles of Emergency Management and Homeland Security

Select three from the following:

HSEM F412  Emergency Planning and Preparedness
HSEM F423  Disaster Response Operations and Management
HSEM F434  All-Hazards Risk Analysis
HSEM F445  Business Continuity and Crisis Management
HSEM F456  Leadership in Dangerous Contexts

Select at least 3 credits from the following:

BA F317  Employment Law
BA F490  Services Marketing
COMM F335  Organizational Communication
COMM F353  Conflict, Mediation and Communication
GEOS F120X  Glaciers, Earthquakes and Volcanoes: Past, Present and Future
GEOS/GEOG F222  Fundamentals of Geospatial Science
HSEM F452  Internship in Emergency Management

Total Credits 15

1 Or course(s) pre-approved by the program director.

Minor, Military Security Studies
Minimum Requirements for Minor: 16 credits
Students must earn a C- grade or better in each course.
HSEM F301  Principles of Emergency Management and Homeland Security

Select three from the following:

HSEM F412  Emergency Planning and Preparedness
HSEM F423  Disaster Response Operations and Management
HSEM F434  All-Hazards Risk Analysis
HSEM F445  Business Continuity and Crisis Management
HSEM F456  Leadership in Dangerous Contexts

Select at least 3 credits from the following:

BA F317  Employment Law
BA F490  Services Marketing
COMM F335  Organizational Communication
COMM F353  Conflict, Mediation and Communication
GEOS F120X  Glaciers, Earthquakes and Volcanoes: Past, Present and Future
GEOS/GEOG F222  Fundamentals of Geospatial Science
HSEM F452  Internship in Emergency Management

Total Credits 15

1 Or course(s) pre-approved by the program director.
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 the Graduate School, 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 Graduate School.

Students interested in pursuing an undergraduate interdisciplinary degree can contact the Office of the Graduate School and Interdisciplinary Programs for help in finding faculty advisors and developing their curriculum proposal.

**GENERAL STUDIES DEGREE COMPLETION OPTION (MAY NOT BE USED AS A DOUBLE MAJOR)**

Students may not declare this major until they have accumulated at least 100 credits.

### Degrees

- B.A., Interdisciplinary Studies (p. 210)
- B.S., Interdisciplinary Studies (p. 210)
- B.A.A.S., Interdisciplinary Studies (p. 210)

### Minor

- Minor (p. 210)

**B.A., B.A.A.S., or B.S. in 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.

**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.
2. Prepare and submit a draft declaration of interdisciplinary minor form and submit it electronically to the Academic Advising Center.
at www.uaf.edu/advising/ (http://www.uaf.edu/advising) or in person at S10 Gruening Building. Include a title for the minor, briefly describe the body of knowledge and skills intended to fulfill the minor, including courses specifying the knowledge and skills relevant to the minor title. For example: Food Science minor, including relevant course work from transfer credits in Food Science from a regionally accredited university, as well as credits from chemistry, fisheries or natural resources management, and biological sciences. 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 the student’s 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, and will discuss alternatives with the student as needed.

### Japanese Studies

College of Liberal Arts  
Department of Foreign Languages and Literatures  
907-474-7396  
www.uaf.edu/language/ (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. 211)

#### Minor

- Minor, Japanese Studies (p. 211)

#### B.A., Japanese Studies

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 136)

**General Education Requirements**

Complete the general education requirements. (p. 139)

**B.A. Degree Requirements**

Complete the B.A. degree requirements. (p. 141)

**Program Requirements (all courses in this category are taught in Japanese)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPN F301</td>
<td>Advanced Japanese ¹</td>
<td>3</td>
</tr>
<tr>
<td>JPN F302</td>
<td>Advanced Japanese ¹</td>
<td>3</td>
</tr>
<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

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPN F330</td>
<td>Classical Japanese Literature</td>
</tr>
<tr>
<td>JPN F331</td>
<td>Women's Voices in Japanese Literature</td>
</tr>
<tr>
<td>JPN F332</td>
<td>Japanese Cultural Traditions and Arts</td>
</tr>
<tr>
<td>JPN F333</td>
<td>20th-Century Japanese Prose Fiction</td>
</tr>
<tr>
<td>JPN F482</td>
<td>Selected Topics in Japanese</td>
</tr>
</tbody>
</table>

**Japan-Related Electives**

Select 12 credits from the following as approved by an advisor. ³

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPN F210</td>
<td>Beginning Kanji</td>
</tr>
<tr>
<td>JPN F310</td>
<td>Intermediate Kanji</td>
</tr>
<tr>
<td>JPN F311</td>
<td>Advanced Kanji</td>
</tr>
<tr>
<td>JPN F330</td>
<td>Classical Japanese Literature</td>
</tr>
<tr>
<td>JPN F331</td>
<td>Women's Voices in Japanese Literature</td>
</tr>
<tr>
<td>JPN F332</td>
<td>Japanese Cultural Traditions and Arts</td>
</tr>
<tr>
<td>JPN F333</td>
<td>20th-Century Japanese Prose Fiction</td>
</tr>
<tr>
<td>JPN F482</td>
<td>Selected Topics in Japanese</td>
</tr>
<tr>
<td>HIST F121</td>
<td>East Asian Civilization</td>
</tr>
<tr>
<td>HIST F122X</td>
<td>East Asian Civilization</td>
</tr>
<tr>
<td>HIST F331</td>
<td>Modern Japan</td>
</tr>
<tr>
<td>HIST F333</td>
<td>Foundations of Japanese History</td>
</tr>
<tr>
<td>HIST F414</td>
<td>Women and Gender in East Asian History</td>
</tr>
<tr>
<td>GEOG F311</td>
<td>Geography of Asia</td>
</tr>
<tr>
<td>PS F321</td>
<td>International Politics</td>
</tr>
<tr>
<td>PS F464</td>
<td>East Asian Governments and Politics</td>
</tr>
</tbody>
</table>

Completion of semester exchange in Japan or written departmental approval. ¹

| Total Credits | 33 |

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 Fulfills 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.

#### Minor, Japanese Studies

Minimum Requirements for Minor: 15 credits

- Japanese course credits at the F100 level or above 3
- Japanese course credits at the F200 level or above 12

| Total Credits | 15 |

² Includes seminar on contemporary Japan

³ In order to meet the capstone requirement, students must complete a minimum of 15 credits of Japanese language study at the upper-division level to fulfill the Japanese studies core requirements.
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. 212)

Minor
• Minor, Justice (p. 212)

B.A., Justice
Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements, (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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 F125</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 F251</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>
<tr>
<td>Select one from the following capstone courses: 2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>JUST F475</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>JUST F490</td>
<td>Seminar in Critical Issues in Criminal Justice</td>
<td></td>
</tr>
<tr>
<td>JUST F498</td>
<td>Research Project</td>
<td></td>
</tr>
</tbody>
</table>

Select 18 credits from the following, 12 of which need to be justice electives: 18

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F242</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>ANTH F320</td>
<td>Language and Culture in Alaska</td>
</tr>
</tbody>
</table>

Total Credits 45

1 If taken to meet the ethics requirement in the general education 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>Course Code</th>
<th>Course 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>

Total Credits 15

Note: 400-level courses require junior standing or instructor permission.

Law and Society

Minor Only
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. 213)

**Minor, Law and Society**

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course</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</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Liberties</td>
<td></td>
</tr>
</tbody>
</table>

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F425</td>
<td>Federal Indian Law and Alaska Natives</td>
</tr>
<tr>
<td>BA F317</td>
<td>Employment Law</td>
</tr>
<tr>
<td>BA F330</td>
<td>The Legal Environment of Business</td>
</tr>
<tr>
<td>JRN F413</td>
<td>Mass Media Law and Regulation</td>
</tr>
<tr>
<td>JUST F352</td>
<td>Criminal Law</td>
</tr>
<tr>
<td>JUST F354</td>
<td>Procedural Law</td>
</tr>
<tr>
<td>PS F322</td>
<td>International Law and Organization</td>
</tr>
<tr>
<td>PS F450</td>
<td>Comparative Indigenous Rights and Policies</td>
</tr>
<tr>
<td>SOC F435</td>
<td>Sociology of Law</td>
</tr>
</tbody>
</table>

Total Credits 15

**Leadership**

School of Management
Northern Leadership Center
907-474-7461
www.uaf.edu/som/ (http://www.uaf.edu/som)

**Minor Only**
The minor in leadership and management is administered by the Northern Leadership Center. Its purpose is to strengthen the abilities of UAF graduates to lead and contribute effectively in both the public and private spheres, especially in the Alaska economy.

**Minor**
- Minor, Leadership (p. 213)

**Minor, Leadership**

Minimum Requirements for Minor: 15 credits

**Minor Requirements**

Select two of the following:

- HSEM/LEAD F456 Leadership in Dangerous Contexts
- LEAD/BA F470 Leadership Theory and Development
- LEAD/BA F472 Leading Change

**Tracks**

Select 9 credits from one the following tracks:

1. Business Administration Track
   - BA F280 Sports Leadership
   - BA F307 Introductory Human Resources Management
   - BA F460 International Business

2. Military Science Track
   - MILS F101 Foundations of Officership
   - MILS F102 Basic Leadership
   - MILS F201 Individual Leadership Studies
   - MILS F202 Leadership and Teamwork

3. Political Science Track
   - PS F212 Introduction to Public Administration
   - PS F301 American Presidency
   - PS/PHIL F412 Modern Political Theory
   - PS F437 United States Foreign Policy

4. Communication Track
   - COMM F330 Intercultural Communication
   - COMM F331 Advanced Group Communication
   - COMM F335 Organizational Communication
   - COMM F475 Applied Communication in Training and Development

5. Outdoor Leadership Track
   - NRM F161 Wilderness Leadership Education
   - NRM F361 Advanced Wilderness Leadership Education

Select 3 credits from the following skills courses for the remaining 3 credits:

- EMS F150 Wilderness Emergency Care
- RECR F140H Beginning Rock Climbing
- RECR F140K Advanced Rock Climbing
- RECR F140L Technical Climbing
- RECR F140Y Kayaking
- RECR F170G Introduction to Ski Mountaineering
- RECR F170N Introduction to Winter Camping

6. Alaska Native Community Leadership Track
   - ANS F310 Indigenous Land Settlements
   - ANS F325 Native Self-Government
   - ANS/RD F401 Cultural Knowledge of Native Elders
   - ANS F425 Federal Indian Law and Alaska Natives
   - RD F492 Rural Development Seminar

Total Credits 15

1. These courses have prerequisites that need to be taken into consideration. Consult with the leadership minor coordinator.

2. Complete 9 credit hours from one of the "tracks" OR with the written approval of the Director of the Northern Leadership Center, any three 3-credit hour courses from any combination of tracks.

**Linguistics**

College of Liberal Arts
Linguistics Program
907-474-6585
www.uaf.edu/linguist/ (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. 214)

Minor

• Minor, Linguistics (p. 214)

B.A., Linguistics

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete two semesters of a single foreign or Alaska Native language. ¹

B.A. Degree Requirements

Complete the B.A. degree requirements. (p. 141)

Program Requirements

Four semesters (or equivalent) of a foreign, Alaska Native or American Sign language. The language chosen must be different from that used to meet GER above. ¹

<table>
<thead>
<tr>
<th>Course</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 ¹</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></td>
</tr>
<tr>
<td>or LING F420</td>
<td>Semantics</td>
<td></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>

Select four approved electives, three of which must be upper-division. ³

Total Credits: 45-49

Marine Science

School of Fisheries and Ocean Sciences
907-474-7824
www.sfos.uaf.edu/academics/ (http://www.sfos.uaf.edu/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.

Minor, Linguistics

Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Course</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 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>or ENGL F318</td>
<td>Modern English Grammar</td>
<td></td>
</tr>
</tbody>
</table>

Select two LING electives ⁶

Three of these credits may be from related courses in other departments of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL F251X</td>
<td>Introduction to Athabascan Linguistics</td>
</tr>
<tr>
<td>ANL F315</td>
<td>Alaska Native Languages: Eskimo-Aleut</td>
</tr>
<tr>
<td>ANL F316</td>
<td>Alaska Native Languages: Indian Languages</td>
</tr>
<tr>
<td>ANS F320</td>
<td>Language and Culture in Alaska</td>
</tr>
<tr>
<td>ANTH/WGS F308</td>
<td>Language and Gender</td>
</tr>
<tr>
<td>COMM F320</td>
<td>Communication and Language</td>
</tr>
<tr>
<td>ENGL F462</td>
<td>Applied English Linguistics</td>
</tr>
<tr>
<td>ENGL F472</td>
<td>History of the English Language</td>
</tr>
<tr>
<td>LING F410</td>
<td>Theory and Methods of Second Language Teaching</td>
</tr>
<tr>
<td>LING F420</td>
<td>Semantics</td>
</tr>
<tr>
<td>LING F430</td>
<td>Historical Linguistics</td>
</tr>
<tr>
<td>LING F431</td>
<td>Field Methods in Descriptive Linguistics I</td>
</tr>
<tr>
<td>LING F434</td>
<td>Field Methods in Descriptive Linguistics II</td>
</tr>
<tr>
<td>LING F450</td>
<td>Language Policy and Planning</td>
</tr>
</tbody>
</table>

Total Credits: 15

¹ It is recommended that at least one of the languages be other than an Indo-European language.
² Fulfills the baccalaureate capstone requirement.
³ Possible electives include: ANL F251X, ANL F315, ANL F316, ANS F320, COMM F320, ENGL F462, ENGL F472 or any LING course not used above.
Minor

- Minor, Marine Science (p. 215)

**Minor, Marine Science**

Minimum Requirements for Minor: 15 credits

**Minor Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
<td>3</td>
</tr>
<tr>
<td>MSL F213L</td>
<td>Marine Science Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSL F317</td>
<td>Introduction to Marine Mammal Biology</td>
<td>3</td>
</tr>
<tr>
<td>MSL F330</td>
<td>The Dynamic Alaskan Coastline</td>
<td></td>
</tr>
<tr>
<td>MSL F403</td>
<td>Estuaries Oceanography</td>
<td></td>
</tr>
<tr>
<td>MSL F412</td>
<td>Early Life Histories of Marine Invertebrates</td>
<td></td>
</tr>
<tr>
<td>MSL F431</td>
<td>Polar Marine Science</td>
<td></td>
</tr>
<tr>
<td>MSL F449</td>
<td>Biological Oceanography</td>
<td></td>
</tr>
<tr>
<td>MSL F463</td>
<td>Chemical Coastal Processes</td>
<td></td>
</tr>
</tbody>
</table>

Select 5 credits from the following:

**Marine Science and Limnology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSL F220</td>
<td>Scientific Diving</td>
<td></td>
</tr>
<tr>
<td>MSL F317</td>
<td>Introduction to Marine Mammal Biology</td>
<td></td>
</tr>
<tr>
<td>MSL F330</td>
<td>The Dynamic Alaskan Coastline</td>
<td></td>
</tr>
<tr>
<td>MSL F403</td>
<td>Estuaries Oceanography</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 F450</td>
<td>Marine Biology and Ecology Field Course</td>
<td></td>
</tr>
<tr>
<td>MSL F456</td>
<td>Kelp Forest Ecology</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 F492</td>
<td>Seminar</td>
<td></td>
</tr>
</tbody>
</table>

**Fisheries**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISH/BIOL F288</td>
<td>Fish and Fisheries of Alaska</td>
<td></td>
</tr>
<tr>
<td>FISH F425</td>
<td>Fish Ecology</td>
<td></td>
</tr>
<tr>
<td>FISH F440</td>
<td>Oceanography for Fisheries</td>
<td></td>
</tr>
<tr>
<td>FISH/BIOL F427</td>
<td>Ichthyology</td>
<td></td>
</tr>
</tbody>
</table>

**Chemistry**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

**Biology and Wildlife**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F305</td>
<td>Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>BIOL F473</td>
<td>Limnology</td>
<td></td>
</tr>
</tbody>
</table>

**Economics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</td>
<td></td>
</tr>
</tbody>
</table>

**Geoscience**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS/GEOG F222</td>
<td>Fundamentals of Geospatial Science</td>
<td></td>
</tr>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 15

---

**Mathematics**

College of Natural Science and Mathematics  
Department of Mathematics and Statistics  
907-474-7332 or 474-5374  
www.uaf.edu/dms/ (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. 240).

**Degrees**

- B.A., Mathematics (p. 215)
- B.S., Mathematics (p. 215)

**Minor**

- Minor, Mathematics (p. 216)

**B.A. or B.S., Mathematics**

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

**Pre-major Requirement**

Students must be ready to matriculate into MATH F251X before they will be allowed to declare mathematics as their major.

**General University Requirements**

Complete the general university requirements. (p. 136)

**General Education Requirements**

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>

**B.A. or B.S. Degree Requirements**

Select one from the following:

Complete the B.A. degree requirements. (p. 141)

As part of the B.A. requirements, complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td></td>
</tr>
</tbody>
</table>

Complete the B.S. degree requirements. (p. 144)
As part of the B.S. requirements, complete:

MATH F252X Calculus II
PHYS F103X College Physics I
and PHYS F104X College Physics II
or PHYS F211X General Physics I
and PHYS F212X General Physics II

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F253X</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH F265</td>
<td>Introduction to Mathematical Proofs</td>
<td>3</td>
</tr>
<tr>
<td>MATH F314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following options: 29

**Mathematics Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F401</td>
<td>Introduction to Real Analysis</td>
</tr>
<tr>
<td>MATH F405</td>
<td>Abstract Algebra</td>
</tr>
<tr>
<td>MATH F490</td>
<td>Senior Seminar ¹</td>
</tr>
</tbody>
</table>

Select at least 21 additional credits of electives. Following are some suggested elective packages: ²

**Pure Math:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F305</td>
<td>Geometry</td>
</tr>
<tr>
<td>MATH F320</td>
<td>Topics in Combinatorics</td>
</tr>
<tr>
<td>or MATH F321</td>
<td>Number Theory</td>
</tr>
<tr>
<td>MATH F404</td>
<td>Topology</td>
</tr>
<tr>
<td>MATH F422</td>
<td>Introduction to Complex Analysis</td>
</tr>
</tbody>
</table>

Additional 9 elective credits

**Applied Math:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>MATH F421</td>
<td>Applied Analysis</td>
</tr>
<tr>
<td>MATH F422</td>
<td>Introduction to Complex Analysis</td>
</tr>
<tr>
<td>MATH F460</td>
<td>Mathematical Modeling</td>
</tr>
</tbody>
</table>

Select two from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATH F307</td>
<td>Discrete Mathematics</td>
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<tr>
<td>MATH F310</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>STAT F300</td>
<td>Statistics</td>
</tr>
</tbody>
</table>

**Statistics Option**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS F201</td>
<td>Computer Science I</td>
</tr>
<tr>
<td>or NRM F338</td>
<td>Introduction to Geographic Information Systems</td>
</tr>
<tr>
<td>ENGL F314</td>
<td>Technical Writing</td>
</tr>
<tr>
<td>or ENGL F414</td>
<td>Research Writing</td>
</tr>
<tr>
<td>MATH F371</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH F401</td>
<td>Introduction to Real Analysis</td>
</tr>
<tr>
<td>or MATH F405</td>
<td>Abstract Algebra</td>
</tr>
<tr>
<td>MATH F408</td>
<td>Mathematical Statistics</td>
</tr>
<tr>
<td>STAT F300</td>
<td>Statistics</td>
</tr>
<tr>
<td>STAT F401</td>
<td>Regression and Analysis of Variance</td>
</tr>
<tr>
<td>STAT F402</td>
<td>Scientific Sampling</td>
</tr>
<tr>
<td>STAT F454</td>
<td>Statistical Consulting Seminar ¹</td>
</tr>
</tbody>
</table>

Additional 3 elective credits at the F300 level or above

**Total Credits:** 39

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.

### 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 your undergraduate degree program, so that you can be appropriately advised of the State of Alaska requirements for teacher licensure. You may choose to pursue a double major with education or complete a postbaccalaureate teacher certification program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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 F306</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></td>
</tr>
<tr>
<td>and MATH F408</td>
<td>and Mathematical Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F320</td>
<td>Topics in Combinatorics</td>
</tr>
<tr>
<td>MATH F321</td>
<td>Number Theory</td>
</tr>
<tr>
<td>MATH F307</td>
<td>Discrete Mathematics</td>
</tr>
</tbody>
</table>

Select two from the following: 6-7

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F302</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>MATH F310</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>MATH F421</td>
<td>Applied Analysis</td>
</tr>
<tr>
<td>MATH F422</td>
<td>Introduction to Complex Analysis</td>
</tr>
<tr>
<td>MATH F460</td>
<td>Mathematical Modeling</td>
</tr>
</tbody>
</table>

**Total Credits:** 21-22

### Minor, Mathematics

**Minimum Requirements for Minor: 21 credits**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</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>
</tbody>
</table>

Select at least 9 additional credits of the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F265</td>
<td>Introduction to Mathematical Proofs</td>
</tr>
<tr>
<td>STAT F300</td>
<td>Statistics</td>
</tr>
</tbody>
</table>

Any F300- or F400-level MATH course

Electives approved by a mathematics advisor

**Total Credits:** 21
Note: Courses completed to satisfy this minor can be used to simultaneously satisfy other major or general distribution requirements.

Mechanical Engineering

College of Engineering and Mines
Department of Mechanical Engineering
907-474-7136
http://cem.uaf.edu/me/

B.S., B.S./M.S. Degrees

Minimum Requirements for Degree: B.S.: 130 credits; B.S./M.S.: 151 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. A degree in mechanical engineering also frequently forms the base for entering law, medical or business school, as well as for graduate work in engineering.

The objectives of the mechanical engineering program are to produce graduates who are able to compete successfully on the world stage at the professional level; deal with the significant local, regional, national and global issues facing humankind; continue to develop as engineers through lifelong learning; and serve as resources of technical knowledge for the state as well as the nation, especially with respect to northern issues. The Engineering Accreditation Commission of ABET has accredited the B.S. degree program in mechanical engineering since 1980.

Because engineering is based on mathematics, chemistry and physics, students are introduced to the basic principles in these areas during their first two years of study. The third year encompasses courses in the engineering science — extensions to the basic sciences forming the foundation to engineering synthesis and design. The design project course draws on much of the student’s previous learning through a simulated industrial design project. Throughout the four-year program, courses in communication, humanities and social sciences are required because mechanical engineers must be able to communicate effectively in written, oral and graphical form.

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. 217)
• B.S./M.S., Mechanical Engineering (p. 218)

B.S., Mechanical Engineering

Minimum Requirements for Degree: 130 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F251X</td>
<td>Calculus I</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>
</tbody>
</table>

B.S. Degree Requirements

Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Course</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>Basic 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>Measurement and Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>ME F313</td>
<td>Mechanical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME F315</td>
<td>Thermal Systems Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>ME F403</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ME F408</td>
<td>Mechanical Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>ME F415</td>
<td>Heat and Mass Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME F486</td>
<td>Senior Design</td>
<td>1</td>
</tr>
<tr>
<td>ME F487</td>
<td>Design Project</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

Total Credits 103-106

1. Design project must be related to area of concentration.
2. Fulfills the baccalaureate capstone requirement.

Concentrations

MECHANICAL

Mechanical Engineering electives at the F400-level or above 6
Advisor-approved engineering elective at the F400-level or above 3

Total Credits 9

AEROSPACE

ME F450 Theory of Flight 3
ME F451 Aerodynamics 3
ME F452 Introduction to Astrodynamics 3
ME F453 Propulsion Systems 3

Total Credits 12

PETROLEUM

ME F409 Controls 3
ME F416 Design of Mechanical Equipment for the Petroleum Industry 3
ME F464 Corrosion Engineering 3
PETE F426 Drilling Engineering 3

Total Credits 12

B.S./M.S., Mechanical Engineering

Complete the following admission requirements:

a. ME major (junior preferred) or senior standing.
b. 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.
c. Submit GRE (general) scores.
d. Submit a study goal statement.
e. Submit a UAF graduate application for admission.

Minimum Requirements for Both Degree: 151 credits

Students must satisfy the General University Requirements for minimum grades for the respective B.S. or M.S. program (major) requirements.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

B.S. Degree Requirements

Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS F211X</td>
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</tr>
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<td>PHYS F212X</td>
<td>General Physics II</td>
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</tr>
</tbody>
</table>

Master's Degree Requirements

Complete the master's degree requirements. (p. 247)

B.S. Program Requirements

<table>
<thead>
<tr>
<th>Course</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>
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</tr>
<tr>
<td>ES F341</td>
<td>Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ES F346</td>
<td>Basic 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>
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<td>ME F308</td>
<td>Measurement and Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>ME F313</td>
<td>Mechanical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME F321</td>
<td>Industrial Processes</td>
<td>3</td>
</tr>
<tr>
<td>ME F334</td>
<td>Elements of Material Science/Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME F403</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ME F408</td>
<td>Mechanical Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>ME F415</td>
<td>Thermal Systems Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>ME F441</td>
<td>Heat and Mass Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME F486</td>
<td>Senior Design</td>
<td>1</td>
</tr>
<tr>
<td>ME F487</td>
<td>Design Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Fundamentals of Engineering Examination


M.S. Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<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>
</tr>
<tr>
<td>ME F642</td>
<td>Advanced Heat Transfer</td>
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</table>

Thesis or Non-Thesis Requirements

Select the Thesis or Non-Thesis option: 15

Thesis

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ME F699</td>
<td>Thesis</td>
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</tr>
<tr>
<td>Electives</td>
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Non-Thesis

<table>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ME F698</td>
<td>Non-Thesis Research/Project</td>
<td></td>
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<tr>
<td>Electives</td>
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<td>3</td>
</tr>
</tbody>
</table>

Total Credits 112

1. Fulfills the baccalaureate capstone requirement.
2. Electives approved by student's advisory committee with at least 3 credits at the graduate level
and UAF in an annual military skill-based competition in Hawaii. The ceremony. The Ranger Challenge team represents the Nanook Battalion guard for the national colors during the national anthem and opening communal events. They provide a recognized trained and dedicated Color Guard team opens UAF hockey, basketball and other sporting and other events. There are many activities sponsored by the Nanook Battalion. The ROTC department head.

Students who wish to enroll in advanced classes but do not desire to earn a commission may do so with the approval of the leadership potential. Students who wish to enroll in advanced classes but are past their freshman year. The criterion for selection is based on both academic proficiency and qualified and be selected by the professor of military science. The enrollment as an advanced course student. Applicants must be physically qualified and be selected by the professor of military science prior to June 1 annually for information concerning the basic course. Students who complete the basic course and desire to pursue the military obligation incurred by enrolling in any of the basic courses. 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 camp. 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 communal 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.

Military Science and Leadership

School of Management
Department of Military Science and Leadership
907-474-7501
www.uaf.edu/rotc/ (http://www.uaf.edu/rotc)

Minor Only

The Army Reserve Officers’ Training Program (ROTC) 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 camp. 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 communal 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

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.

Minor, Military Science Leadership

Minimum Requirements for Minor: 19 credits

| Electives must be approved by the department. |  
| MILS electives | 19 |
| Total Credits | 19 |

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:

1. Electives approved by student’s advisory committee with at least 6 credits at the graduate level

2. 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.

   Minor Only

   The Army Reserve Officers’ Training Program (ROTC) 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 camp. 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 communal 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.

   Minor

   • Minor, Military Science and Leadership (p. 219)

   Minor, Military Science Leadership

   Minimum Requirements for Minor: 19 credits

   | Electives must be approved by the department. |  
   | MILS electives | 19 |
   | Total Credits | 19 |

   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. 220)

Minor

• Minor, Mining Engineering (p. 220)

B.S., Mining Engineering

Minimum Requirements for Degree: 132 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</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>LS F101X</td>
<td>Library Information and Research</td>
<td>1</td>
</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td>4</td>
</tr>
</tbody>
</table>

B.S. Degree Requirements

Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Program Requirements

<table>
<thead>
<tr>
<th>Course</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 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>Basic 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>
</tr>
<tr>
<td>MIN F489</td>
<td>Mining Design Project I</td>
<td>1</td>
</tr>
<tr>
<td>MIN F490</td>
<td>Mining Design Project II</td>
<td>2</td>
</tr>
<tr>
<td>MIN F485</td>
<td>Mining Engineering Exit Interview</td>
<td>0</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>
</tbody>
</table>

Recommended Technical Electives

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE F603</td>
<td>Arctic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>GE F440</td>
<td>Slope Stability</td>
<td>3</td>
</tr>
<tr>
<td>MIN F401</td>
<td>Mine Site Field Trips</td>
<td>3</td>
</tr>
<tr>
<td>MIN F415</td>
<td>Coal Preparation</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.

Total Credits 105

1 Fullfills the baccalaureate capstone requirement.
2 Students must plan their elective courses in consultation with their mining engineering faculty advisor. Technical electives are selected from the list of the approved technical electives for mining engineering program and other programs course listing. All elective courses must be approved by the department head.

Minor, Mining Engineering
Minimum Requirements for Minor: 15 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 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

Total Credits: 15-16

---

**Music**

College of Liberal Arts
Department of Music
907-474-7555
www.uaf.edu/music/ (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 with a concentration in music. The B.M. degree in music education offers thorough preparation in teacher training with sufficient time to develop excellence in performance areas. The B.M. degree in performance offers intensive specialization for those desiring professional training in music performance.

Recitals and concerts provide students with a variety of musical experiences which expand their regular curriculum.

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 music organizations maintained by the department offer participation for students in all academic divisions of the university. Music majors in the B.A. program will be required to earn a minimum of 4 credits in large ensembles. Music majors in the B.M. program will be required to earn a minimum of 8 credits in large ensembles: MUS F101, 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 nonmajor) who enrolls in private applied lessons must be currently 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 which expand their regular curriculum; therefore, registration for MUS F190 is mandatory until majors have passed eight semesters and minors have passed two. All applied music students enrolled in MUS F261 or higher are required to perform in at least one student recital 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 major in order to advance to the next level of study. A student may elect to continue study at the F200 level to prepare to pass requirements for admission to upper-division study. The performance jury at the end of the first semester of study serves as an audition for students wishing to enter a B.M. program in music education or performance. Competency levels required for each degree must be achieved in one performance area.

A piano proficiency jury examination must be successfully completed by the end of the student’s second year in the program. See the Music Department handbook for details.

Students who desire to enroll in music theory or ear training courses will complete a placement examination and be allowed to enter at their appropriate level.

Students must earn a C grade or better in each course of their major concentration. MUS F493 is repeatable 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. 221)
- B.M., Music (Performance) (p. 223)
- B.M., Music Education (p. 223)

**Minor**

- Minor, Music (p. 224)

**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.

**General University Requirements**

Complete the general university requirements. (p. 136)

**General Education Requirements**

Complete the general education requirements. (p. 139)

**B.A. Degree Requirements**

Complete the B.A. degree requirements. (p. 141)

**Audition**

Complete an audition on the major instrument.

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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 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>
<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>8</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 (major area)</td>
<td></td>
</tr>
<tr>
<td>MUS F190</td>
<td>Recital Attendance</td>
<td>0</td>
</tr>
</tbody>
</table>
MUS F221 and MUS F222  History of Western Music I and History of Western Music II  6
MUS F223X  Alaska Native Music  3
MUS F231 and MUS F232  Advanced Music Theory I and Advanced Music Theory II  4
MUS F233 and MUS F234  Advanced Ear Training I and Advanced Ear Training II  2
MUS F253  Piano Proficiency  0
MUS F331  Form and Analysis  3
MUS F476  Senior Project  3
Large ensembles  4

**Concentrations**

Complete one of the following concentrations:  21-24

**General**

Music Theory
Music History
Music Composition

Total Credits  67-70

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**

Select 12 credits from the following:  12

MUS F410  Women in Music History
MUS F421  Music Before 1620
MUS F422  Music in the 17th and 18th Centuries
MUS F423  Music of the 19th Century
MUS F424  Music Since 1900
MUS F431  Counterpoint
MUS F432  Orchestration and Arranging

Select 9 credits from the following:  9

MUS F207  UAF Jazz Band
MUS F307  Chamber Music
MUS F351  Conducting
MUS F361  Private Lessons (major area)
MUS F362  Private Lessons (major area)
MUS F426  Music Literature
MUS F426  Private Lessons (major area)
MUS F426  Music Literature
MUS F432  Orchestration and Arranging

Total Credits  21

**MUSIC THEORY**

MUS F431  Counterpoint  3
MUS F432  Orchestration and Arranging  3
MUS F433  Seminar in Musical Composition  3
MUS F434  Advanced Harmonic Analysis  3

Select 6 credits from the following:  6

MUS F410  Women in Music History
MUS F421  Music Before 1620
MUS F422  Music in the 17th and 18th Centuries
MUS F423  Music of the 19th Century
MUS F424  Music Since 1900

Select 6 credits from the following:  6

MUS F207  UAF Jazz Band
MUS F307  Chamber Music
MUS F351  Conducting
MUS F361  Private Lessons (major area)
MUS F362  Private Lessons (major area)
MUS F432  Orchestration and Arranging

Total Credits  24

**MUSIC HISTORY**

MUS F421  Music Before 1620  3
MUS F422  Music in the 17th and 18th Centuries  3
MUS F423  Music of the 19th Century  3
MUS F424  Music Since 1900  3

Select 6 credits from the following:  6

MUS F410  Women in Music History
MUS F426  Music Literature
MUS F431  Counterpoint
MUS F434  Advanced Harmonic Analysis

Select 6 credits from the following:  6

MUS F207  UAF Jazz Band
MUS F307  Chamber Music
MUS F351  Conducting
MUS F361  Private Lessons (major area)
MUS F362  Private Lessons (major area)
MUS F432  Orchestration and Arranging

Total Credits  24

**MUSIC COMPOSITION**

MUS F432  Orchestration and Arranging  3
MUS F433  Seminar in Musical Composition  3
MUS F435  Private Lessons in Music Composition  6

Select 6 credits from the following:  6

MUS F410  Women in Music History
MUS F421  Music Before 1620
MUS F422  Music in the 17th and 18th Centuries
MUS F423  Music of the 19th Century
MUS F424  Music Since 1900
MUS F426  Music Literature
MUS F434  Advanced Harmonic Analysis

Select 6 credits from the following:  6
MUS F207 | UAF Jazz Band
MUS F307 | Chamber Music
MUS F332 | Introduction to Computer-Based Music Technology
MUS F351 | Conducting
MUS F361 | Private Lessons (major area)
MUS F362 | Private Lessons (major area)
MUS F431 | Counterpoint

Total Credits | 24

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.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

Degree and Program Requirements

Large ensembles 1 6
ANS/ED F420 | Alaska Native Education 3
or ED F350 | Communication in Cross-Cultural Classrooms
EDSE F482 | Inclusive Classrooms for All Children 3
or EDSE F316 | Introduction to Special Education for Elementary Classroom Teachers
MUS F131 | Basic Music Theory I 6
and MUS F132 | and Basic Music Theory II
MUS F133 | Basic Ear Training I 4
and MUS F134 | and Basic Ear Training II
MUS F152 | Functional Piano I 3
and MUS F153 | and Functional Piano II
and MUS F154 | and Functional Piano III
MUS F161 | Private Lessons 14
and MUS F162 | and Private Lessons
and MUS F261 | and Private Lessons
and MUS F262 | and Private Lessons
and MUS F361 | and Private Lessons
and MUS F362 | and Private Lessons 2
MUS F190 | Recital Attendance 0
MUS F221 | History of Western Music I 6
and MUS F222 | and History of Western Music II
MUS F233X | Alaska Native Music 3
MUS F231 | Advanced Music Theory I 4
and MUS F232 | and Advanced Music Theory II
MUS F233 | Advanced Ear Training I 2
and MUS F234 | and Advanced Ear Training II
MUS F253 | Piano Proficiency 0
MUS F331 | Form and Analysis 3
MUS F351 | Conducting 3
MUS F390 | Junior Recital 0

Total Credits | 87-102

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.

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
ED F452 | Elementary Internship 3-12
MUED F309 | Elementary School Music Methods 3
Total Credits | 6-15

SECONDARY
ED F453 | Secondary Internship 3-12
MUED F405 | Secondary School Music Methods 3
Total Credits | 6-15

K-12
ED F454 | Student Teaching K-12 1 15
MUED F309 | Elementary School Music Methods 3
MUED F405 | Secondary School Music Methods 3
Total Credits | 21

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.

General University Requirements

Complete the general university requirements. (p. 136)
General Education Requirements
Complete the general education requirements. (p. 139)
As part of the general education requirements, voice majors must complete:
10 credits foreign language ¹

Degree and Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F131 and MUS F132</td>
<td>Basic Music Theory I and Basic Music Theory II</td>
<td>6</td>
</tr>
<tr>
<td>MUS F133 and MUS F134</td>
<td>Basic Ear Training I and Basic Ear Training II</td>
<td>4</td>
</tr>
<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>
</tr>
<tr>
<td>MUS F221 and MUS F222</td>
<td>History of Western Music I and History of Western Music II</td>
<td>6</td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td>3</td>
</tr>
<tr>
<td>MUS F231 and MUS F232</td>
<td>Advanced Music Theory I and Advanced Music Theory II</td>
<td>4</td>
</tr>
<tr>
<td>MUS F233 and MUS F234</td>
<td>Advanced Ear Training I and Advanced Ear Training II</td>
<td>2</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>
<td>³</td>
<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 ⁴</td>
<td>0</td>
</tr>
</tbody>
</table>

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F431</td>
<td>Counterpoint</td>
<td>6</td>
</tr>
<tr>
<td>MUS F432</td>
<td>Orchestration and Arranging</td>
<td>6</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>
<tr>
<td>MUS F435</td>
<td>Private Lessons in Music Composition</td>
<td>3</td>
</tr>
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</table>

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F410</td>
<td>Women in Music History</td>
<td>6</td>
</tr>
<tr>
<td>MUS F421</td>
<td>Music Before 1620</td>
<td>6</td>
</tr>
<tr>
<td>MUS F422</td>
<td>Music in the 17th and 18th Centuries</td>
<td>6</td>
</tr>
<tr>
<td>MUS F423</td>
<td>Music of the 19th Century</td>
<td>6</td>
</tr>
</tbody>
</table>

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F161</td>
<td>Private Lessons</td>
<td>9</td>
</tr>
<tr>
<td>MUS F162</td>
<td>Private Lessons</td>
<td>9</td>
</tr>
<tr>
<td>MUS F261</td>
<td>Private Lessons</td>
<td>9</td>
</tr>
<tr>
<td>MUS F262</td>
<td>Private Lessons</td>
<td>9</td>
</tr>
<tr>
<td>MUS F361</td>
<td>Private Lessons</td>
<td>9</td>
</tr>
<tr>
<td>MUS F362</td>
<td>Private Lessons</td>
<td>9</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)**

Minor Requirements
Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F103X</td>
<td>Music Fundamentals</td>
<td>12</td>
</tr>
<tr>
<td>MUS F122</td>
<td>History of Popular Music</td>
<td>12</td>
</tr>
<tr>
<td>MUS F124</td>
<td>Music in World Cultures</td>
<td>12</td>
</tr>
<tr>
<td>MUS F131</td>
<td>Basic Music Theory I</td>
<td>12</td>
</tr>
<tr>
<td>MUS F132</td>
<td>Basic Music Theory II</td>
<td>12</td>
</tr>
<tr>
<td>MUS F133</td>
<td>Basic Ear Training I</td>
<td>12</td>
</tr>
<tr>
<td>MUS F134</td>
<td>Basic Ear Training II</td>
<td>12</td>
</tr>
<tr>
<td>MUS F221</td>
<td>History of Western Music I</td>
<td>12</td>
</tr>
<tr>
<td>MUS F222</td>
<td>History of Western Music II</td>
<td>12</td>
</tr>
<tr>
<td>MUS F223X</td>
<td>Alaska Native Music</td>
<td>12</td>
</tr>
<tr>
<td>MUS F231</td>
<td>Advanced Music Theory I</td>
<td>12</td>
</tr>
<tr>
<td>MUS F232</td>
<td>Advanced Music Theory II</td>
<td>12</td>
</tr>
<tr>
<td>MUS F233</td>
<td>Advanced Ear Training I</td>
<td>12</td>
</tr>
<tr>
<td>MUS F234</td>
<td>Advanced Ear Training II</td>
<td>12</td>
</tr>
<tr>
<td>MUS F253</td>
<td>Piano Proficiency</td>
<td>12</td>
</tr>
<tr>
<td>MUS F331</td>
<td>Form and Analysis</td>
<td>12</td>
</tr>
<tr>
<td>MUS F351</td>
<td>Conducting</td>
<td>12</td>
</tr>
<tr>
<td>MUS F390</td>
<td>Senior Recital ⁴</td>
<td>12</td>
</tr>
<tr>
<td>MUS F410</td>
<td>Women in Music History</td>
<td>12</td>
</tr>
<tr>
<td>MUS F421</td>
<td>Music Before 1620</td>
<td>12</td>
</tr>
<tr>
<td>MUS F422</td>
<td>Music in the 17th and 18th Centuries</td>
<td>12</td>
</tr>
<tr>
<td>MUS F423</td>
<td>Music of the 19th Century</td>
<td>12</td>
</tr>
<tr>
<td>MUS F424</td>
<td>Music Since 1900</td>
<td>12</td>
</tr>
</tbody>
</table>

Select 2 credits from the following music large ensemble courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS F101</td>
<td>University Chorus</td>
<td>2</td>
</tr>
<tr>
<td>MUS F117</td>
<td>Northern Lights String Orchestra</td>
<td>2</td>
</tr>
</tbody>
</table>
Select 4 credits from the following courses in lessons or ensemble:

- MUS F151 Class Lesson
- MUS F161 Private Lessons
- MUS F162 Private Lessons
- MUS F261 Private Lessons
- MUS F262 Private Lessons
- MUS F361 Private Lessons
- MUS F362 Private Lessons
- MUS F461 Private Lessons
- MUS F462 Private Lessons
- MUS F190 Recital Attendance (two semesters)

Select 8 credits from the following courses in private lessons or chamber music:

- MUS F161 Private Lessons
- MUS F162 Private Lessons
- MUS F261 Private Lessons
- MUS F262 Private Lessons
- MUS F361 Private Lessons
- MUS F362 Private Lessons
- MUS F461 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 Management

School of Natural Resources and Extension  
907-474-7083  
[www.uaf.edu/snre/](http://www.uaf.edu/snre)

### B.S. Degree

Minimum Requirements for Degree: 120 credits

The complexity and interrelatedness of society and the environment require an interdisciplinary approach to making and implementing sustainable natural resource decisions. The natural resources management degree integrates knowledge in natural science, policy, economics and human values to advance the sustainable management of natural resources 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 will be qualified for employment in a broad range of private enterprise, government agencies and nonprofit organizations in the various natural resources fields, and will be well-equipped for graduate studies.

### Degree

- B.S., Natural Resources Management (p. 225)

### Minor

- Minor, Natural Resource Management (p. 226)
- Minor, Forest Management (p. 226)

### B.S., Natural Resources Management

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

### General University Requirements

Complete the general university requirements. (p. 136)

### General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

- CHEM F105X General Chemistry I 4
- NRM F303X Environmental Ethics and Actions 3
- MATH Calculus course

### B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 F240</td>
<td>Natural Resources Measurement and Inventory</td>
<td>3</td>
</tr>
<tr>
<td>NRM F210</td>
<td>Principles of Sustainable Agriculture</td>
<td>3</td>
</tr>
<tr>
<td>ECON F235X</td>
<td>Introduction to Natural Resource Economics</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/GEOG F483</td>
<td>Research Design, Writing and Presentation Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

**GIS Courses**

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F338</td>
<td>Introduction to Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>NRM F369</td>
<td>GIS and Remote Sensing for Natural Resources</td>
<td></td>
</tr>
<tr>
<td>NRM F435</td>
<td>GIS Analysis</td>
<td></td>
</tr>
</tbody>
</table>

**Policy/Law Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F204</td>
<td>Public Lands Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>or NRM F407</td>
<td>Environmental Law</td>
<td></td>
</tr>
</tbody>
</table>

**Minor, Pre-vet, Support Field**

Select a minor, pre-vet, or 15 credits in a support field

- **Total Credits**: 77

1. Fulfills the baccalaureate capstone requirement.
2. Complete a minor, pre-vet, or 15 credits in a support field which is a group of courses selected for its clear pertinence to a cohesive program. Support fields may include but are not limited to natural resources management, chemistry, communication, education, art, fisheries and wildlife management. Courses must be approved by the student’s academic advisor and department head prior to attaining senior standing. Note: students must take a total of 39 upper division credits.

**Minor, Forest Management**

Minimum Requirements for Minor: 16 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F251</td>
<td>Silvics and Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NRM F252</td>
<td>Forest Health and Protection</td>
<td></td>
</tr>
<tr>
<td>NRM F450</td>
<td>Forest Management</td>
<td></td>
</tr>
<tr>
<td>NRM F452</td>
<td>Harvesting and Utilization of Forest Products</td>
<td></td>
</tr>
<tr>
<td>NRM F453</td>
<td>Harvesting and Utilization of Forest Products</td>
<td></td>
</tr>
</tbody>
</table>

**Minor, Natural Resource Management**

Minimum Requirements for Minor: 18 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
<td>3</td>
</tr>
<tr>
<td>NRM electives</td>
<td>15 credits required</td>
<td></td>
</tr>
</tbody>
</table>

**Northern Studies**

College of Liberal Arts
907-474-7126
www.uaf.edu/northern/ (http://www.uaf.edu/northern)

**B.A. Degree**

Minimum Requirements for Degree: 120 credits

The northern studies program offers an interdisciplinary study of northern problems and policy issues. The purpose of the 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 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 northern studies curriculum is centered around an interdisciplinary course (NORS 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. 77).

**Degree**
- B.A., Northern Studies (p. 227)

**Minor**
- Minor, Northern Studies (p. 227)

**B.A., Northern Studies**

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

**General University Requirements**
Complete the general university requirements. (p. 136)

**General Education Requirements**
Complete the general education requirements. (p. 139)

**B.A. Degree Requirements**
Complete the B.A. degree requirements. (p. 141)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>NORS F201</td>
<td>The Circumpolar North: An Introductory Overview</td>
<td>3</td>
</tr>
<tr>
<td>NORS F484</td>
<td>Seminar in Northern Studies ¹</td>
<td>3</td>
</tr>
</tbody>
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Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL/ANS F349</td>
<td>Narrative Art of Alaska Native Peoples</td>
</tr>
<tr>
<td>ENGL F449</td>
<td>Northern and Environmental Literature</td>
</tr>
<tr>
<td>NORS/ART F425</td>
<td>Visual Images of the North</td>
</tr>
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</table>

Select one from the following: ³

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PS F263</td>
<td>Alaska Native Politics</td>
</tr>
<tr>
<td>PS F462</td>
<td>Alaska Government and Politics</td>
</tr>
<tr>
<td>PS F460</td>
<td>Government and Politics of Canada</td>
</tr>
<tr>
<td>PS F468</td>
<td>Government and Politics of Russia</td>
</tr>
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</table>

**Electives**
Select 15 credits from two of the following groups: ²

<table>
<thead>
<tr>
<th>Group</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Anthropology</td>
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<tr>
<td>ANTH F302</td>
<td>Siberia: Past, Present, Future</td>
</tr>
<tr>
<td>ANTH F309</td>
<td>Circumpolar Archaeology</td>
</tr>
<tr>
<td>ANS/ANTH F320</td>
<td>Language and Culture in Alaska</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH F383</td>
<td>Athabascan Peoples of Alaska and Adjacent Canada</td>
</tr>
<tr>
<td>ANTH F472</td>
<td>Culture and History in the North Atlantic</td>
</tr>
<tr>
<td>GEOG F302</td>
<td>Geography of Alaska</td>
</tr>
<tr>
<td>GEOG F303</td>
<td>Geography of United States and Canada</td>
</tr>
<tr>
<td>GEOG F306</td>
<td>Geography of Russia</td>
</tr>
<tr>
<td>HIST F404</td>
<td>Modern Scandinavia</td>
</tr>
<tr>
<td>HIST F461</td>
<td>History of Alaska</td>
</tr>
<tr>
<td>HIST F463</td>
<td>Imperial Russia, 1700-1917</td>
</tr>
<tr>
<td>HIST F464</td>
<td>Soviet and Post-Soviet Russia</td>
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<tr>
<td>HIST F481</td>
<td>Polar Exploration and its Literature</td>
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<tr>
<td>PS/ANS F325</td>
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<tr>
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<td>Comparative Indigenous Rights and Policies</td>
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<td>PS F452</td>
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</tr>
<tr>
<td>PS F460</td>
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</tr>
<tr>
<td>PS F468</td>
<td>Government and Politics of Russia</td>
</tr>
<tr>
<td>ANS/ENGL F349</td>
<td>Narrative Art of Alaska Native Peoples (in English Translation)</td>
</tr>
<tr>
<td>ENGL F449</td>
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<tr>
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<td>HIST F404</td>
<td>Modern Scandinavia</td>
</tr>
<tr>
<td>HIST F461</td>
<td>History of Alaska</td>
</tr>
<tr>
<td>HIST F463</td>
<td>Imperial Russia, 1700-1917</td>
</tr>
<tr>
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<tr>
<td>ENGL F449</td>
<td>Northern and Environmental Literature</td>
</tr>
<tr>
<td>ANS F242X/ANTH F242</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>NORS F201</td>
<td>The Circumpolar North: An Introductory Overview</td>
</tr>
<tr>
<td>ANS/ANTH F320</td>
<td>Language and Culture in Alaska</td>
</tr>
<tr>
<td>ANS/ENGL F349</td>
<td>Narrative Art of Alaska Native Peoples (in English Translation)</td>
</tr>
<tr>
<td>ENGL F449</td>
<td>Northern and Environmental Literature</td>
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<td>ANS/ART F365</td>
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<td>Soviet and Post-Soviet Russia</td>
</tr>
<tr>
<td>HIST F481</td>
<td>Polar Exploration and its Literature</td>
</tr>
</tbody>
</table>

**Minor, Northern Studies**

Minimum Requirements for Minor: 19 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORS F201</td>
<td>The Circumpolar North: An Introductory Overview</td>
</tr>
<tr>
<td>ANS F242X/ANTH F242</td>
<td>Native Cultures of Alaska</td>
</tr>
<tr>
<td>NORS F201</td>
<td>The Circumpolar North: An Introductory Overview</td>
</tr>
<tr>
<td>PS F263</td>
<td>Alaska Native Politics</td>
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<tr>
<td>PS F462</td>
<td>Alaska Government and Politics</td>
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<td>PS F460</td>
<td>Government and Politics of Canada</td>
</tr>
<tr>
<td>PS F468</td>
<td>Government and Politics of Russia</td>
</tr>
</tbody>
</table>

Select one from the following: ³

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORS/ART F425</td>
<td>Visual Images of the North</td>
</tr>
<tr>
<td>ENGL F449</td>
<td>Northern and Environmental Literature</td>
</tr>
<tr>
<td>ANS/ART F365</td>
<td>Native Art of Alaska</td>
</tr>
<tr>
<td>ANS/ENGL F350</td>
<td>Narrative Art of Alaska Native Peoples (in English Translation)</td>
</tr>
</tbody>
</table>

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.
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. 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 one of the most modern and challenging degree programs available.

The petroleum engineering program educational objectives are:

1. Our graduates will possess the technical knowledge and skills required to analyze real world petroleum engineering problems, and develop innovative solutions that meet the needs of multiple stakeholders.
2. Our graduates will recognize the value of continuing professional development throughout their careers. This may take the form of advanced degrees, industry courses, and formal mentoring and coaching.
3. Our graduates will compete effectively in the global petroleum engineering profession and they will exhibit the behaviors necessary to become leaders in the Alaska petroleum industry and beyond.

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. 228)

B.S., Petroleum Engineering
Minimum Requirements for Degree: 133 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:
CHEM F105X General Chemistry I 4
CHEM F106X General Chemistry II 4
LS F101X Library Information and Research 1
MATH F251X Calculus I 4

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)

As part of the B.S. degree requirements, complete:
MATH F252X Calculus II 4
PHYS F211X General Physics I 4
PHYS F212X General Physics II 4

Program Requirements
ES F201 Computer Techniques 3
ES F208 Mechanics 4
ES F331 Mechanics of Materials 3
ES F341 Fluid Mechanics 4
ES F346 Basic Thermodynamics 3
GE F261 General Geology for Engineers 3-4
or GEOS F101X The Dynamic Earth
GEOS F370
PETE F101 Fundamentals of Petroleum, Drilling and Production 3
PETE F301 Reservoir Rock and Fluid Properties 4
PETE F302 Well Logging 3
PETE F303 Reservoir Rock and Fluid Properties Laboratory 1
PETE F407 Petroleum Production Engineering 3
PETE F411 Drilling Fluids Laboratory 1
PETE F421 Reservoir Characterization 3
PETE F426 Drilling Engineering 3
PETE F431 Natural Gas Engineering 2
PETE F456 Petroleum Evaluation and Economic Decisions 3
PETE F466 Petroleum Recovery Methods 3
PETE F476 Petroleum Reservoir Engineering 3
PETE F478 Well Test Analysis 2
PETE F481 Well Completions and Stimulation Design 3
PETE F487A Petroleum Project Design 1,2 1
PETE F487B Petroleum Project Design 2 1
PETE F489 Reservoir Simulation 2
Engineering elective 3 3
Technical elective 4 3

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.

<table>
<thead>
<tr>
<th>PHIL F487</th>
<th>Conceptual Issues in Evolutionary Biology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

1. PHIL F322X may not be counted toward a philosophy major or minor if used to fulfill general education requirements.

**Philosophy**

College of Liberal Arts  
Department of Philosophy and Humanities  
907-474-7343  
www.uaf.edu/philo/ (http://www.uaf.edu/philo)

**Minor Only**

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.

**Minor**

• Minor, Philosophy (p. 229)

**Minor, Philosophy**

Minimum Requirements for Minor: 18 credits

| PHIL F102X | Introduction to Philosophy | 3 |
| PHIL F351 | History of Ancient Greek Philosophy | 3 |
| PHIL F352 | History of Modern Philosophy: Descartes to Kant | 3 |
| PHIL elective at the F400 level | 3 |

Select two from the following: 6

| PHIL F104X | Logic and Reasoning | 3 |
| PHIL F108 | Critical Thinking | 3 |
| PHIL F110 | Introduction to Political Philosophy | 3 |
| PHIL F202 | Introduction to Eastern Philosophy | 3 |
| PHIL F322X | Ethics 1 | 3 |
| PHIL F341 | Theories of Knowledge | 3 |
| PHIL F342 | Theories of Reality | 3 |
| PHIL F353 | Survey of Buddhist Thought | 3 |
| PHIL F361 | Philosophy in Literature | 3 |
| PHIL F381 | Topics in Logs | 3 |
| PHIL F402 | Biomedical and Research Ethics | 3 |
| PHIL/PS F411 | Classical Political Theory | 3 |
| PHIL/PS F412 | Modern Political Theory | 3 |
| PHIL F421 | Aesthetics | 3 |
| PHIL F472 | Ethics in International Affairs | 3 |
| PHIL F481 | Philosophy of Science | 3 |
| PHIL F482 | Comparative Philosophy and Religions | 3 |
| PHIL F485 | Topics in Comparative Philosophies | 3 |

1. PHIL F322X may not be counted toward a philosophy major or minor if used to fulfill general education requirements.

**Physics**

College of Natural Science and Mathematics  
Department of Physics  
907-474-7339  
www.uaf.edu/physics/ (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 (p. 229)

**Minor**

• Minor, Physics (p. 231)

**B.S., Physics**

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

**General University Requirements**

Complete the general university requirements. (p. 136)

**General Education Requirements**
Complete the general education requirements. (p. 139)
As part of the general education requirements, complete:
MATH F251X Calculus I 4

B.S. Degree Requirements
Complete the B.S. degree requirements. (p. 144)
As part of the B.S. degree requirements, complete:
MATH F252X Calculus II 4
PHYS F211X General Physics I 4
PHYS F212X General Physics II 4

Program Requirements
MATH F253X Calculus III 4
PHYS F213X Elementary Modern Physics 4
PHYS F220 Introduction to Computational Physics 4
PHYS F301 Introduction to Mathematical Physics 4
PHYS F341 Classical Physics I: Particle Mechanics 4
PHYS F342 Classical Physics II: Electricity and Magnetism 4
PHYS F400 Capstone Project 1 0

Concentrations
Complete one from the following concentrations: 31-40
Physics
Applied Physics
Atmospheric Physics
Computational Physics
Technical Management

Total Credits 71-80

1 Fulfills the baccalaureate capstone requirement. The capstone project can be done either as individual undergraduate research with a faculty member (PHYS F488) or as an independent study with a faculty member within any F300 or F400-level physics course (PHYS F497) or as participation in the international University Physics Competition. Credits required to fulfill the capstone experience do not count towards credits required to complete the concentration.

Concentrations

PHYSICS

Program Requirements
MATH electives at the F300 level or above 1 6
PHYS F351 Thermal Physics 2
PHYS F451 Statistical Physics 2
PHYS F343 Classical Physics III: Vibration and Waves 4
PHYS F381 Physics Laboratory 3
PHYS F421 Quantum Mechanics 4
PHYS F462 Geometrical and Physical Optics 4
Select 6 credits from the following: 6
PHYS F471A Advanced Topics in Physics I: Condensed Matter Physics I
PHYS F471B Advanced Topics in Physics I: Condensed Matter Physics II
PHYS F471C Advanced Topics in Physics I: Space and Auroral Physics
PHYS F471D Advanced Topics in Physics I: Nonlinear Dynamics
PHYS F471E Advanced Topics in Physics I: Biophysics
PHYS F471F Advanced Topics in Physics I: Nuclear and Particle Physics
PHYS F471G Advanced Topics in Physics I: General Relativity
PHYS F471H Advanced Topics in Physics I: Astrophysics
PHYS F471I Advanced Topics in Physics I: Topics in Modern Mathematical Physics
PHYS F471J Advanced Topics in Physics I: Order of Magnitude Physics
PHYS F472A Advanced Topics in Physics II: Planetary Atmospheres
PHYS F472B Advanced Topics in Physics II: Fluid Dynamics
PHYS F472C Advanced Topics in Physics II: Plasma Physics
PHYS F472D Advanced Topics in Physics II: Hamiltonian Mechanics
PHYS F472E Advanced Topics in Physics II: Physics of Glaciers
PHYS F472F Advanced Topics in Physics II: Remote Sensing
PHYS F472G Advanced Topics in Physics II: Solar Physics
PHYS F472H Advanced Topics in Physics II: Advanced Laboratory
PHYS F472I Advanced Topics in Physics II: Spectroscopy
PHYS F472J Advanced Topics in Physics II: Cosmology
PHYS F472K Advanced Topics in Physics II: Quantum Computation
PHYS F472L Advanced Topics in Physics II: Covariant Kinematics/Dynamics
PHYS F472Z Advanced Topics in Physics II: Current Topics in Physics

Total Credits 31

1 Recommended courses include MATH F314, MATH F421 and MATH F422.

APPLIED PHYSICS

Program Requirements
MATH electives at the F300 level or above 1 6
Physics credits at the F300 level or above 9
Applied physics 2 17

Total Credits 32

1 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.

**ATMOSPHERIC PHYSICS**

**Program Requirements**

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

Other relevant upper-division courses.  

Total Credits: 32

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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.

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**COMPUTATIONAL PHYSICS**

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>Other relevant upper-division courses.</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 32

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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.

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**TECHNICAL MANAGEMENT**

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>STAT F200X</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Physics credits at the F300 level or above</td>
<td>12</td>
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</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>School of Management Courses</td>
<td></td>
<td></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>

Total Credits: 40

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1. Recommended courses include MATH F314, MATH F421 and MATH F422.

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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.

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**Requirements for physics teachers (grades 7-12)**

Students must earn a C- grade or better in each course.

**Program Requirements**

All prospective physics teachers must complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>and CHEM F106X</td>
<td>and General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td>4</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>PHYS F301</td>
<td>Introduction to Mathematical Physics</td>
<td>4</td>
</tr>
<tr>
<td>MATH electives</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Physics-approved electives</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

All prospective science teachers must complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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 UAF School of Education early in your undergraduate degree program, so that you can be appropriately advised of the State of Alaska requirements for teacher licensure. Apply for admission to the UAF School of Education’s postbaccalaureate teacher preparation program, a one-year intensive program, during your senior year.

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**Minor, Physics**

Minimum Requirements for Minor: 20 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS F213X</td>
<td>Elementary Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>Physics electives at the F300-400 level</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 20

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**Political Science**

College of Liberal Arts
Department of Political Science
907-474-7609
www.uaf.edu/polisci/ (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. 232)

Minor

- Minor, Political Science (p. 233)

B.A., Political Science

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

<table>
<thead>
<tr>
<th>Course</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>PS F100X</td>
<td>Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>PS F300X</td>
<td>Ethics and Society</td>
<td>3</td>
</tr>
</tbody>
</table>

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F101</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>Select one of the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>PS F475</td>
<td>Internship in Public Affairs</td>
<td></td>
</tr>
<tr>
<td>PS F499</td>
<td>Senior Thesis</td>
<td></td>
</tr>
<tr>
<td>The Alaska Universities Legislative Internship Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other approved internship earning at least 3 transferable upper-division credits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Political Science

Select 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>Course</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>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PS F303</td>
<td>Politics and the Judicial Process</td>
<td></td>
</tr>
<tr>
<td>PS F435</td>
<td>Constitutional Law I: Federalism</td>
<td></td>
</tr>
<tr>
<td>PS F436</td>
<td>Constitutional Law II: Civil Rights and Liberties</td>
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</table>

Comparative Politics

<table>
<thead>
<tr>
<th>Course</th>
<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>
<td></td>
</tr>
</tbody>
</table>

International Politics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F321</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>
<td></td>
</tr>
</tbody>
</table>

Political Theory

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F314</td>
<td>Political Ideologies</td>
<td></td>
</tr>
<tr>
<td>PS F315</td>
<td>American Political Thought</td>
<td></td>
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</tbody>
</table>
Minor, Political Science

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS F101</td>
<td>Introduction to American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>Select at least four political science courses at the F200, F300 or F400 level</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

Psychology

College of Liberal Arts
Department of Psychology
907-474-7007
www.uaf.edu/psych/ (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.

The Alaska Natives into Psychology program helps train Alaska Natives and American Indians as psychologists or other behavioral health professionals to address the significant shortage of these professionals in Alaska, particularly rural Alaska. The program strives to attract Native high school and undergraduate students seeking a degree in psychology.

Degree
- B.A. or B.S., Psychology (p. 233)

Minor
- Minor, Psychology (p. 234)

B.A. or B.S., Psychology

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. or B.S. Degree Requirements
Complete the B.A. degree requirements. (p. 141)
Complete the B.S. degree requirements. (p. 144)

Program Requirements

Select 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</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 F320</td>
<td>History and Systems of Psychology</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>
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</tr>
<tr>
<td>PSY F470</td>
<td>Sensation and Perception</td>
<td></td>
</tr>
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</table>

Select 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</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 1</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

Total Credits: 36

1 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.

Minor, Psychology

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY F101X Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY electives</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></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 888-574-6528  
www.uaf.edu/danrd (http://www.uaf.edu/danrd)

B.A. Degree

Minimum Requirements for Degree: 120 credits

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 two department-specific requirements in addition to general university admission: an oral interview with faculty and a written questionnaire. Findings from this process will be used to support the department advising process and assist students in connecting with faculty and mentors. The questionnaire and instructions for the oral interview are 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, 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 **community health and wellness** concentration is for students with a strong interest in health and wellness. Students focus on the various facets of a healthy rural community. Going beyond the basics of health care, they explore different aspects of wellness within a community and develop tools to attain community wellness goals. Students blend and apply both contemporary and traditional health and wellness tools. Graduates may find employment with tribal governments, health consortia, clinics and schools.
  - The **community research and indigenous knowledge** concentration is for students with interests in applied research involving Alaska Native communities, cultures, languages, ceremonial performances and histories. Students learn principles of ethical research, explore issues of intellectual and cultural property rights, and acquire skills to do ethnographies, oral histories, community surveys and needs assessments, and archival research. Graduates may find employment with museums, ANCSA corporations, tribal governments, and state and federal agencies.
  - The concentration in **indigenous organization management** is designed for students interested in development and operations of indigenous organizations in rural Alaska. Students develop an understanding of the history and constitutional basis for tribal governance, 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 **natural resource development** concentration is designed for students with an interest in land and resources development, co-management and conservation. 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 concentration in **rural community business and economic development planning** 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.

For more information contact the department toll-free at 888-574-6528 or visit our website: www.uaf.edu/danrd/ (http://www.uaf.edu/danrd).

Degree

- B.A., Rural Development (p. 234)

Minor

- Minor, Rural Development (p. 237)

B.A., Rural Development

Concentrations: Community Health and Wellness; Community Research and Indigenous Knowledge; Indigenous Organization Management; Natural Resource Development; Rural Community Business and Economic Development Planning
Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (p. 136)

General Education Requirements
Complete the general education requirements. (p. 139)

B.A. Degree Requirements
Complete the B.A. degree requirements. (p. 141)
Including 39 upper division credits

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</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>Community Development Strategies</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 for Rural Communities</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 F400</td>
<td>Rural Development Internship</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>RD elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>RD, ANS, TM or ED electives</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Concentrations
Complete one from the following concentrations: 21

- Community Health and Wellness
- Community Research and Indigenous Knowledge
- Indigenous Organization Management
- Natural Resource Development
- Rural Community Business and Economic Development Planning

Total Credits 54

1 Students outside the Fairbanks area should verify that their chosen minor can be completed via distance delivery before declaring.

2 Fulfills the baccalaureate capstone requirement.

Concentrations
COMMUNITY HEALTH AND WELLNESS

Program Requirements
Select 21 credits from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS F275</td>
<td>Yup’ik Practices in Spirituality and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ANS F330</td>
<td>Yup’ik Parenting and Child Development (Kuskokwim Campus only)</td>
<td>3</td>
</tr>
<tr>
<td>ANS F348</td>
<td>Native North American Women</td>
<td>3</td>
</tr>
<tr>
<td>ANS F350</td>
<td>Cross-Cultural Communication: Alaska Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>ANS/ED F420</td>
<td>Alaska Native Education</td>
<td>3</td>
</tr>
<tr>
<td>ANS F461</td>
<td>Native Ways of Knowing</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

1 Recommended courses. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.

COMMUNITY RESEARCH AND INDIGENOUS KNOWLEDGE

Program Requirements
Select 21 credits from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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 F315</td>
<td>Alaska Native Languages: Eskimo-Aleut</td>
<td>3</td>
</tr>
<tr>
<td>ANL F316</td>
<td>Alaska Native Languages: Indian Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANS F202X</td>
<td>Aesthetic Appreciation of Alaska Native Performance</td>
<td>3</td>
</tr>
<tr>
<td>ANS F242X</td>
<td>Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS F275</td>
<td>Yup’ik Practices in Spirituality and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ANS/ANTH F320</td>
<td>Language and Culture in Alaska</td>
<td>3</td>
</tr>
<tr>
<td>EBOT F200</td>
<td>Seminar in Ethnobotany</td>
<td>3</td>
</tr>
<tr>
<td>HIST F446</td>
<td>American Indian History</td>
<td>3</td>
</tr>
<tr>
<td>HIST F490</td>
<td>Researching and Writing Northern History</td>
<td>3</td>
</tr>
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</table>
INDIGENOUS ORGANIZATION MANAGEMENT

Program Requirements
Select 21 credits from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ABUS F232</td>
<td>Contemporary Management Issues</td>
</tr>
<tr>
<td>ABUS F263</td>
<td>Public Relations</td>
</tr>
<tr>
<td>ABUS F273</td>
<td>Managing a Small Business</td>
</tr>
<tr>
<td>ANS F310</td>
<td>Indigenous Land Settlements</td>
</tr>
<tr>
<td>ANS F325</td>
<td>Native Self-Government</td>
</tr>
<tr>
<td>ANS/PS F425</td>
<td>Federal Indian Law and Alaska Natives</td>
</tr>
<tr>
<td>ANS F450</td>
<td>Comparative Indigenous Rights and Policies</td>
</tr>
<tr>
<td>BA F307</td>
<td>Introductory Human Resources Management</td>
</tr>
<tr>
<td>BA F317</td>
<td>Employment Law</td>
</tr>
<tr>
<td>BA F457</td>
<td>Training and Management Development</td>
</tr>
<tr>
<td>NORS/PS F205</td>
<td>Leadership, Citizenship and Choice</td>
</tr>
<tr>
<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
</tr>
<tr>
<td>NRM F464</td>
<td>Wilderness Management</td>
</tr>
<tr>
<td>RD F280</td>
<td>Resource Management Research Techniques</td>
</tr>
<tr>
<td>RD F401</td>
<td>Cultural Knowledge of Native Elders</td>
</tr>
<tr>
<td>RD F427</td>
<td>Tribal Contracting and Compacting</td>
</tr>
<tr>
<td>RD F430</td>
<td>Indigenous Economic Development and Entrepreneurship</td>
</tr>
<tr>
<td>RD F451</td>
<td>Human Resource Management for Indigenous Communities</td>
</tr>
<tr>
<td>RD F460</td>
<td>Women and Development</td>
</tr>
<tr>
<td>RD F492</td>
<td>Rural Development Seminar (may earn up to six credits)</td>
</tr>
<tr>
<td>TM F101</td>
<td>Introduction to Tribal Government in Alaska</td>
</tr>
</tbody>
</table>

Recommended courses. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.

NATURAL RESOURCE DEVELOPMENT

Program Requirements
Select 21 credits from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F158</td>
<td>Introduction to Tourism</td>
</tr>
<tr>
<td>AMIT F101</td>
<td>Introduction to Mining</td>
</tr>
<tr>
<td>EBOT F100</td>
<td>Introduction to Ethnobotany</td>
</tr>
<tr>
<td>EBOT F200</td>
<td>Seminar in Ethnobotany</td>
</tr>
<tr>
<td>ENVI F101</td>
<td>Introduction to Environmental Science</td>
</tr>
<tr>
<td>FISH F101</td>
<td>Introduction to Fisheries</td>
</tr>
<tr>
<td>FISH F261</td>
<td>Introduction to Fisheries Utilization</td>
</tr>
<tr>
<td>HLRM F120</td>
<td>History of Domesticated Alaskan Ungulates</td>
</tr>
<tr>
<td>HLRM F140</td>
<td>High Latitude Range Management</td>
</tr>
<tr>
<td>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
</tr>
<tr>
<td>NRM F453</td>
<td>Harvesting and Utilization of Forest Products</td>
</tr>
<tr>
<td>NRM F461</td>
<td>Interpretive Services</td>
</tr>
<tr>
<td>NRM F464</td>
<td>Wilderness Management</td>
</tr>
<tr>
<td>RD F245</td>
<td>Fisheries and Marine Wildlife Development in Rural Alaska</td>
</tr>
<tr>
<td>RD F255</td>
<td>Rural Alaska Land Issues</td>
</tr>
<tr>
<td>RD F265</td>
<td>Perspectives on Subsistence in Alaska</td>
</tr>
<tr>
<td>RD F268</td>
<td>Rural Tourism: Planning and Principles</td>
</tr>
<tr>
<td>RD F280</td>
<td>Resource Management Research Techniques</td>
</tr>
<tr>
<td>RD F425</td>
<td>Cultural Resource Issues</td>
</tr>
<tr>
<td>RD F430</td>
<td>Indigenous Economic Development and Entrepreneurship</td>
</tr>
<tr>
<td>RD F492</td>
<td>Rural Development Seminar (may earn up to six credits)</td>
</tr>
<tr>
<td>TM F120</td>
<td>Introduction to Tribal Natural Resource Management</td>
</tr>
<tr>
<td>TM F170</td>
<td>Fundamentals of Rural Transportation</td>
</tr>
<tr>
<td>TM F225</td>
<td>Cross Connections: Adapting and Integrating Principles of Management and Conservation</td>
</tr>
</tbody>
</table>

Recommended courses. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.
RURAL COMMUNITY BUSINESS AND ECONOMIC DEVELOPMENT PLANNING

Program Requirements

Select 21 credits from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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 F151</td>
<td>Village-Based Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F155</td>
<td>Business Math</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F161</td>
<td>Personal and Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>ABUS F272</td>
<td>Small-Business Planning</td>
<td>3</td>
</tr>
<tr>
<td>AMIT F101</td>
<td>Introduction to Mining</td>
<td>3</td>
</tr>
<tr>
<td>ANS/RD F315</td>
<td>Tribal People and Development</td>
<td>3</td>
</tr>
<tr>
<td>ANS F325</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>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>NRM F101</td>
<td>Natural Resources Conservation and Policy</td>
<td>3</td>
</tr>
<tr>
<td>RD F110</td>
<td>Alaska Native Claims Settlement Act: Land Claims in the 21st Century</td>
<td>3</td>
</tr>
<tr>
<td>RD F250</td>
<td>Grant Writing for Community Development</td>
<td>3</td>
</tr>
<tr>
<td>RD F268</td>
<td>Rural Tourism: Planning and Principles</td>
<td>3</td>
</tr>
<tr>
<td>RD F427</td>
<td>Tribal Contracting and Compacting</td>
<td>3</td>
</tr>
<tr>
<td>RD F460</td>
<td>Women and Development</td>
<td>3</td>
</tr>
<tr>
<td>RD F470/F670</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 (may earn up to six credits)</td>
<td>3</td>
</tr>
<tr>
<td>TM F170</td>
<td>Fundamentals of Rural Transportation</td>
<td>3</td>
</tr>
<tr>
<td>TM F171</td>
<td>Introduction to the Indian Reservation Roads Program</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

1 Recommended courses. Course substitutions relevant to the concentration area may be made with approval of the rural development faculty advisor.

Concentration area and elective credits may also fulfill the humanities, social science or mathematics general requirements for the B.A. degree. Prerequisites are required for many of these courses; however, prerequisites do not apply to the credit requirement.

Minor, Rural Development

Minimum Requirements for Minor: 15 credits

Any three-credit RD course at the F200 level or above 3

Total Credits 15
Minor, Russian Studies

Minimum Requirements for Minor: 15 credits

Select 15 credits from the Russian studies core or an advisor-approved combination from the Russian studies core and Russian studies electives

Total Credits 15

Social Work

College of Liberal Arts
Department of Social Work
907-474-7240
www.uaf.edu/socwork/ (http://www.uaf.edu/socwork)

B.A. Degree

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.

The curriculum includes a liberal arts base, foundation requirements in the behavioral sciences, and sequences in social policy and services, practice methods and field instruction. A major emphasis is the preparation of the student for beginning social work practice with rural and Alaska Native populations.

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. 238)

Minor

- Minor, Social Work (p. 239)

B.A., Social Work

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

SOC F100X Individual, Society and Culture 3
or ANTH F100X Individual, Society and Culture

Select one from the following: 4

BIOL F100X Human Biology
BIOL F103X Biology and Society
BIOL F115X Fundamentals of Biology I
BIOL F116X Fundamentals of Biology II
BIOL F213X Human Anatomy and Physiology I
BIOL F214X Human Anatomy and Physiology II

B.A. Degree Requirements

Complete the B.A. degree requirements. (p. 141)

As part of the B.A. degree requirements, complete:

ANS F242X/ ANTH F242 Native Cultures of Alaska 3
PSY F101X Introduction to Psychology 3

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 F440 Social Work Practice with Military Families 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 II 3-6

Special Problems Areas

Select two from the following: 6
Minor

Minor, Social Work

Minimum Requirements for Minor: 15 credits

SWK F103X Introduction to Social Work 3
SWK F220 Ethics, Values and Social Work Practice 3
Select three SWK designated courses, excluding SWK F460, SWK F461, SWK F463 and SWK F464 9

Total Credits 15

Sociology

College of Liberal Arts
Department of Sociology
907-474-5494
www.uaf.edu/sociology/ (http://www.uaf.edu/sociology)

B.A. Degree

Admissions to this program are currently suspended.

Minimum Requirements for Degrees: 120 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.

Degree

- B.A., Sociology (p. 239) — This program is currently suspended.

Minor

- Minor, Sociology (p. 240)

B.A., Sociology

This program is presently suspended.

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements

Complete the general university requirements. (p. 136)

General Education Requirements

Complete the general education requirements. (p. 139)

As part of the general education requirements, complete:

- SOC F100X Individual, Society and Culture 3

B.A. Requirements

Complete the B.A. degree requirements. (p. 141)

Program Requirements

- SOC F201X Social Problems 3
- SOC F263 Social Inequality and Stratification 3
- SOC F303 Early Sociological Thought 3
- SOC F308 Race and Ethnic Relations 3
- SOC F373 Research Methods in the Social Sciences 3
- SOC F490 Capstone Seminar in Sociology 1 3

Research Methods

Select one of the following: 3
- SOC/PSY F250 Introductory Statistics for Social Sciences
- SOC/PSY F480 Qualitative Social Science Research
- STAT F200X Elementary Probability and Statistics

Electives

Select 12 credits from the following: 2 12
- SOC F202 Sociology of Popular Culture
- SOC F242 The Family: A Cross-Cultural Perspective
- SOC F301 Rural Sociology
- SOC F309 Urban Sociology
- SOC F310 Sociology of Aging
- SOC/WGS F320 Sociology of Gender
- SOC/PSY F330 Social Psychology
- SOC/PSY F333/ WGS F332 Human Sexualities Across Cultures
- SOC F335 Deviance and Social Control
- SOC/ED F345 Sociology of Education
- SOC F350 Sociology of Childhood
- SOC F405 Social Movements and Social Change
- SOC F407 Work and Occupations
- SOC F435 Sociology of Law
- SOC F440 Environmental Sociology
- SOC F460 Global Issues in Sociological Perspective
Minor, Sociology

Minimum Requirements for Minor: 18 credits

SOC F201X Social Problems 3
SOC electives 15
Total Credits 18

Statistics

College of Natural Science and Mathematics
Department of Mathematics and Statistics
907-474-7332
www.uaf.edu/dms/ (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. 240)

Minor, Statistics

Minimum Requirements for Minor: 16 credits

MATH F371 Probability 1 3
MATH F408 Mathematical Statistics 3
STAT F200X Elementary Probability and Statistics 3
or STAT F300 Statistics 3
STAT F401 Regression and Analysis of Variance 4
MATH, STAT or STAT related course work 2 3
Total Credits 16

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 need only complete MATH F371 and MATH F408 in addition to their fisheries requirements to obtain a minor in statistics.

Sustainable Agriculture

School of Natural Resources and Extension
907-474-7083
www.uaf.edu/snre/ (http://www.uaf.edu/snre)

Minor Only

The minor in sustainable agriculture is based on social, economic and environmental aspects of agriculture and food production. The curriculum supports a basic understanding of sustainability science in global and U.S. agriculture and an appreciation for the integrated nature of the biological, physical and social sciences that make up sustainable agriculture.

Minor

• Minor, Sustainable Agriculture (p. 240)

Minor, Sustainable Agriculture

Minimum Requirements for Minor: 18 credits

Students must earn a C- grade or better in each course.

ECON F235X Introduction to Natural Resource Economics 3
NRM F101 Natural Resources Conservation and Policy 3
NRM F210 Principles of Sustainable Agriculture 3
Select three from the following: 9
NRM F211 Introduction to Applied Plant Science
NRM F220 Introduction to Animal Science
NRM F380 Soils and the Environment
NRM F303X Environmental Ethics and Actions
NRM F403 Environmental Decision-Making
Total Credits 18

Note: Students majoring in natural resources management are not eligible for the sustainable agriculture minor.

Teaching English to Speakers of Other Languages

College of Liberal Arts
Department of Linguistics
907-474-6585
www.uaf.edu/linguist/ (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. 241)
Minor, Teaching English to Speakers of Other Languages

Minimum Requirements for Minor: 16 credits

Students must earn a C- grade or better in each course except LING F200, which is graded on a pass/fail basis.

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

Total Credits 16

Note: F400-level courses require junior standing or instructor permission.

Wildlife Biology and Conservation

College of Natural Science and Mathematics
Department of Biology and Wildlife
907-474-7671
www.bw.uaf.edu (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.
Minor, Wildlife Biology and Conservation

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLF F460</td>
<td>Wildlife Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>WLF F469</td>
<td>Landscape Ecology and Wildlife Habitat</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three from the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL F425</td>
<td>Mammalogy</td>
<td>3</td>
</tr>
<tr>
<td>BIOL F426</td>
<td>Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>WLF F425</td>
<td>Ecology and Management of Birds</td>
<td>3</td>
</tr>
<tr>
<td>WLF F421</td>
<td>Ecology and Management of Large Mammals</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>HIST F411</td>
<td>Environmental History</td>
<td>3</td>
</tr>
<tr>
<td>NRM F204</td>
<td>Public Lands Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>NRM F403</td>
<td>Environmental Decision-Making</td>
<td>3</td>
</tr>
<tr>
<td>NRM F407</td>
<td>Environmental Law</td>
<td>3</td>
</tr>
<tr>
<td>PS F447</td>
<td>U.S. Environmental Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select at least two additional courses at the F300 level or higher (3 or 4 credits) in biology, wildlife biology, fisheries or natural resources management 6-8

Complete the baccalaureate capstone requirement as determined by the program.

Total Credits 64.5-67.5

Note: B.S. degree candidates are strongly urged to obtain work experience in wildlife-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers.

Requirements for biology teachers (grades 7-12)

We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in your undergraduate degree program so that you can be appropriately advised of the State of Alaska requirements for teacher licensure. You will apply for admission to the UAF School of Education’s postbaccalaureate teacher preparation program, a one-year intensive program, during your senior year. The above requirements apply to all candidates who apply to the UAF School of Education for licensure in biology.

Complete all the requirements of the wildlife biology B.S. degree.

All prospective biology teachers must complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>2</td>
</tr>
<tr>
<td>and CHEM F325</td>
<td>and Organic Chemistry II</td>
<td></td>
</tr>
</tbody>
</table>

All prospective science teachers must complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL F481</td>
<td>Philosophy of Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 19

Women, Gender and Sexuality Studies

College of Liberal Arts
907-474-6249
www.uaf.edu/women/ (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. 242)

Minor, Women’s and Gender Studies

Minimum Requirements for Minor: 15 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGS F201X</td>
<td>Introduction to Women’s and Gender Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Select at least 12 additional credits 1 12

Total Credits 15

1 Additional credits from courses cross-listed with WGS [and that are from two or more disciplines] 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
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 and the Chemistry Department 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.

### Degree

- B.A., Yup'ik Language and Culture (p. 243)

#### 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>General University Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 136)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Education Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general education requirements. (p. 139)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B.A. Degree Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the B.A. degree requirements. (p. 141)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS F401 or ANS F461</td>
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<tr>
<td></td>
</tr>
<tr>
<td>ESK F130</td>
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<tr>
<td>ESK F131</td>
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<tr>
<td>ESK F203</td>
</tr>
<tr>
<td>ESK F204</td>
</tr>
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<td>ESK F205</td>
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**Total Credits** 39

1 Fulfills the baccalaureate capstone requirement.
GRADUATE DEGREES

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 on Applying for Admission: Graduate Degree Programs (p. 29) 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. 47).

General University Requirements

- **Catalog and Time Limit**
  You may elect to graduate under the degree requirements in effect the first semester of your enrollment in your graduate degree program or under the catalog in effect when you graduate. However, if you do not meet continuous registration requirements, you waive the right to use the catalog in effect when you first entered your graduate program; you will use either the catalog in effect during the semester of your re-entry or the catalog in effect when you graduate.
  
  All non-academic 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 Ph.D.

- **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. 246).

- **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. 249) 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 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 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.

- **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; 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 exceed 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 Admissions and 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 Admissions and 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

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 typically require between 12 and 15 credits and 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.

REQUIREMENTS FOR GRADUATE CERTIFICATES

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. 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

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. Specifically, master’s degree students must:
   a. Meet all requirements set forth in the General University Requirements (p. 244) 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 MBA degree program) may substitute a capstone course or 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. 246) section.

i. Complete all degree requirements within the seven-year time limit.

j. Archive thesis or project in the UAF Rasmuson Library

• 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. 32).)

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. 244) 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.

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 student’s graduate advisory committee, the department chair of the student’s program, the dean of the school or college and the dean of the Graduate School.

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 CIVIL ENGINEERING

1. Complete at least 30 credits of course work. At least 21 credits, including those earned for thesis and research/project, must be at the F600-level.

2. Complete a comprehensive exam or capstone course that includes demonstration of the ability to synthesize information in the field at a level appropriate for a master’s degree.

3. Archive the thesis or project in the UAF Rasmuson Library.

MASTER OF ELECTRICAL ENGINEERING

1. Complete at least 32 credits of course work. At least 26 credits, including those earned for thesis and research/project, must be at the F600-level.

2. Complete a comprehensive exam or capstone course that includes demonstration of the ability to synthesize information in the field at a level appropriate for a master’s degree.

3. Archive the thesis or project in the UAF Rasmuson Library.

MASTER OF FINE ARTS

A general description is available in creative writing (see English (p. 280)) and art (p. 252).

MASTER OF NATURAL RESOURCES MANAGEMENT

A general description is available in the graduate degree programs (p. 295) listing.

SPECIALIZED PROGRAMS

The master’s programs in 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.

PEACE CORPS MASTER’S INTERNATIONAL PROGRAM

UAF and the U.S. Peace Corps participate in a cooperative master’s degree program. This program provides an opportunity to integrate graduate study in rural development or natural resources management with international development practice through Peace Corps field experience.

To complete the program, two semesters of course work for the master’s degree in rural development or natural resources management must be taken on the campus. This year of course work is followed by a two-year Peace Corps Volunteer assignment. On completion of the volunteer assignment, students return to the UAF campus to finish the master’s degree requirements.

Students completing the program will be awarded a Master of Arts degree in rural development in the College of Rural and Community Development or a Master of Science degree in natural resources management in the School of Natural Resources and Extension.

Additional information is available by email at uaf-grad-school@alaska.edu or by calling 907-474-7464.

Graduate Degree Programs

Anthropology

College of Liberal Arts
Department of Anthropology
907-474-7288
www.uaf.edu/anthro/ (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. 250)
- Ph.D., Anthropology (p. 250)

M.A., Anthropology

- Complete the admission process including the following:
  1. Submit GRE scores.

Minimum Requirements for Degree: 30-36 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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></td>
</tr>
<tr>
<td>or ANTH F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Complete four semesters of a foreign language or proficiency in a research tool.

Select 18 credits established by the advisory committee 18

Total Credits 30

1 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.

Ph.D., Anthropology

- Complete the admission process including the following:
  1. Submit GRE scores.

Minimum Requirements for Degree: 18 credits

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248)

Program Requirements
Complete course work in anthropology and related disciplines as determined by the advisory committee.

Complete one foreign language and a research tool, or two foreign languages.

Arctic and Northern Studies

College of Liberal Arts
907-474-7126
Interdisciplinary
www.uaf.edu/northern/ (http://www.uaf.edu/northern)

M.A. Degree

Minimum Requirements for Degree: 30 credits

The Arctic 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. 77).

**Degree**

- M.A., Arctic and Northern Studies (p. 251)

**M.A., Arctic and Northern Studies**

**Concentrations:** Individualized Study, Environmental Politics and Policy, Northern History, Arctic Policy

**Minimum Requirements for Degree:** 30 credits

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master’s Degree Requirements**
Complete the master’s degree requirements. (p. 247)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORS F600 Perspectives on the North</td>
<td>3</td>
</tr>
<tr>
<td>NORS F601 Research Methods and Sources in the North</td>
<td>3</td>
</tr>
<tr>
<td>Select two elective courses at the F400 or F600 level</td>
<td>6</td>
</tr>
<tr>
<td>NORS F698 Non-Thesis Research/Project</td>
<td>6-12</td>
</tr>
<tr>
<td>or NORS F699 Thesis</td>
<td></td>
</tr>
</tbody>
</table>

**Concentrations**

Select one of the following concentrations: 12-21

- Individualized Study
- Environmental Politics and Policy
- Northern History
- Arctic Policy

**Total Credits** 30-45

---

### 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.

Select 12 credits of the following:

- **Course offerings selected from the relevant department and/or**

- Courses offered within the Northern Studies program, including those in the other concentrations and/or

  - Select any from the following:
    - NORS F640 Ethics and Reporting in the Far North
    - NORS F652 International Relations of the North
    - NORS F660 Government and Politics of Canada
    - NORS F662 Alaska Government and Politics
    - NORS F668 Government and Politics of Russia

**Total Credits** 12

---

1 Some students may, with the consent of their graduate committee, develop an individualized program with an emphasis on Alaska Native studies, northern art, northern sociology, northern policy studies, or another northern field or discipline.

#### ENVIRONMENTAL POLITICS AND POLICY

The environmental politics and policy concentration may be used as a basis for the M.A. thesis/project.

Select 12 credits from the following:

- NORS/PS F603 Public Policy
- NORS/PS F647 U.S. Environmental Politics
- NORS F648 Environmental Politics of the Circumpolar North
- NORS/PS F654 International Law and the Environment
- NORS/PS F655 Political Economy of the Global Environment
- NORS/PS F656 Science, Technology, and Politics
- NORS/PS F658 Comparative Environmental Politics
- NORS F613 Wilderness and Environmental Psychology

**Total Credits** 12

---

**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.

Select 9 credits from the following:

- NORS F690 Researching and Writing Northern History
- or HIST F490 Researching and Writing Northern History

Select 9 credits from the following:

- HIST F470 Seminar in Alaskan History
- NORS F661/ HIST F662 History of Alaska
- NORS/HIST F663 Imperial Russia, 1700-1917
M.F.A., Art

• Complete the following admission requirements:
  a. Submit a separate portfolio of work (about 20 slides or the appropriate equivalent depending on field of study).
  b. Complete a B.F.A. degree from a university other than UAF, 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 a B.A. in art, or other undergraduate degree, will be accepted provisionally and with the condition that they make up any deficiencies as determined by their graduate committee. The same requirements are observed with the determination of previous schooling from a university other than UAF.

Concentrations: Ceramics, Computer Art, Drawing, Native Arts, Painting, Photography, Printmaking, Sculpture

Minimum Requirements for Degree: 60 credits

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course</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>ART F698</td>
<td>M.F.A. Project</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
Courses may be chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F624</td>
<td>Field Artists of the North</td>
</tr>
<tr>
<td>ART F625</td>
<td>Visual Images of the North</td>
</tr>
<tr>
<td>ART F663</td>
<td>Seminar in Art History</td>
</tr>
<tr>
<td>ART F673</td>
<td>History of the Role of the Artist</td>
</tr>
</tbody>
</table>

Select at least two studio areas at the F600 level
Courses may be chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART F601</td>
<td>Ceramics</td>
</tr>
<tr>
<td>ART F603</td>
<td>Graduate Photography</td>
</tr>
<tr>
<td>ART F605</td>
<td>Drawing</td>
</tr>
<tr>
<td>ART F607</td>
<td>Printmaking</td>
</tr>
<tr>
<td>ART F609</td>
<td>Metalsmithing</td>
</tr>
<tr>
<td>ART F611</td>
<td>Sculpture</td>
</tr>
<tr>
<td>ART F613</td>
<td>Painting</td>
</tr>
<tr>
<td>ART F619</td>
<td>Life Drawing</td>
</tr>
<tr>
<td>ART F633</td>
<td>Graduate Field Painting</td>
</tr>
<tr>
<td>ART F648</td>
<td>Native Arts</td>
</tr>
<tr>
<td>ART F671</td>
<td>Two- and Three-Dimensional Computer Design</td>
</tr>
<tr>
<td>ART F672</td>
<td>Advanced Computer Visualization in Art</td>
</tr>
<tr>
<td>ART F684</td>
<td>Multimedia Theory and Practice</td>
</tr>
<tr>
<td>JRN F605</td>
<td>Advanced Photography Seminar</td>
</tr>
</tbody>
</table>

Total Credits 57

1 Studio with 2 hour oral comprehensive examination
The F400-level classes in these areas can be taken with additional requirements.

Note: Graduate students are required to be enrolled in a mentored teaching section while teaching.

Atmospheric Sciences
College of Natural Science and Mathematics
Department of Atmospheric Sciences
907-474-7368
www.uaf.edu/asp/ (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.

Degrees
• M.S., Atmospheric Sciences (p. 253)
• Ph.D., Atmospheric Sciences (p. 253)

M.S., Atmospheric Sciences
Minimum Requirements for Degree: 30 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Program Requirements
Select four from the following basic courses in atmospheric sciences:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F601</td>
<td>Introduction to Atmospheric Sciences</td>
</tr>
<tr>
<td>ATM F606</td>
<td>Atmospheric Chemistry</td>
</tr>
<tr>
<td>ATM F613</td>
<td>Atmospheric Radiation</td>
</tr>
<tr>
<td>ATM F615</td>
<td>Cloud Physics</td>
</tr>
<tr>
<td>ATM F645</td>
<td>Atmospheric Dynamics</td>
</tr>
</tbody>
</table>

Total Credits: 24-36

Ph.D., Atmospheric Sciences
Minimum Requirements for Degree: 45 credits

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248)

Program Requirements
Complete the following basic courses in atmospheric sciences:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM F601</td>
<td>Introduction to Atmospheric Sciences</td>
</tr>
<tr>
<td>ATM F606</td>
<td>Atmospheric Chemistry</td>
</tr>
<tr>
<td>ATM F613</td>
<td>Atmospheric Radiation</td>
</tr>
<tr>
<td>ATM F615</td>
<td>Cloud Physics</td>
</tr>
<tr>
<td>ATM F645</td>
<td>Atmospheric Dynamics</td>
</tr>
</tbody>
</table>

Complete 12 additional approved credits, 6 of which should be ATM courses

Complete minimum of 18 thesis credits

Total Credits: 45

Biochemistry and Neuroscience
College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
www.uaf.edu/chem/ (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. 254)
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>General University Requirements</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 244)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ph.D. Degree Requirements</th>
<th>38</th>
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</thead>
<tbody>
<tr>
<td>Complete the Ph.D. degree requirements. (p. 248)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
<th>9</th>
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<tbody>
<tr>
<td>Complete the Ph.D. degree requirements. (p. 248)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Select three from the following:</th>
<th>9</th>
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<tbody>
<tr>
<td>CHEM F654 Protein Structure and Function</td>
<td></td>
</tr>
<tr>
<td>CHEM F657 Molecular Foundations of Gene Expression</td>
<td></td>
</tr>
<tr>
<td>CHEM F674 Membrane Biochemistry and Biophysics</td>
<td></td>
</tr>
<tr>
<td>CHEM F670 Cellular and Molecular Neuroscience</td>
<td></td>
</tr>
<tr>
<td>CHEM F675 Cellular Signaling</td>
<td></td>
</tr>
<tr>
<td>CHEM F676 Neurochemistry</td>
<td></td>
</tr>
</tbody>
</table>

Select three electives with two of the electives in neurosciences

Complete Ph.D. dissertation in a field of neuroscience

Complete two seminar series (CHEM F692)

Total Credits 9

See Chemistry B.A., B.S. (p. 164) and M.S. (p. 256) programs.

See Environmental Chemistry (p. 282).

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>General University Requirements</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 244)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ph.D. Degree Requirements</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the Ph.D. degree requirements. (p. 248)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the Ph.D. degree requirements. (p. 248)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select three from the following:</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM F654 Protein Structure and Function</td>
<td></td>
</tr>
<tr>
<td>CHEM F657 Molecular Foundations of Gene Expression</td>
<td></td>
</tr>
<tr>
<td>CHEM F674 Membrane Biochemistry and Biophysics</td>
<td></td>
</tr>
<tr>
<td>CHEM F670 Cellular and Molecular Neuroscience</td>
<td></td>
</tr>
<tr>
<td>CHEM F675 Cellular Signaling</td>
<td></td>
</tr>
<tr>
<td>CHEM F676 Neurochemistry</td>
<td></td>
</tr>
</tbody>
</table>

Select three electives with two of the electives in neurosciences

Complete Ph.D. dissertation in a field of neuroscience

Complete two seminar series (CHEM F692)

Total Credits 9

See Chemistry B.A., B.S. (p. 164) and M.S. (p. 256) programs.

See Environmental Chemistry (p. 282).
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. 255)
- Ph.D., Biological Sciences (p. 255)

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

General University Requirements
Complete the general university requirements. (p. 244)

Master’s (with Thesis) Degree Requirements
Complete the master’s degree requirements. (p. 247)
Complete and pass the departmental written and oral master’s comprehensive examination

Ph.D., Biological Sciences
Complete the admission process including the following:
- 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).
- 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

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248)

If entering with only a bachelor’s degree, complete and pass the departmental written and oral Ph.D. qualifying examination
Complete and pass a written and oral comprehensive examination by the graduate advisory committee
In this program or in previous postbaccalaureate programs, complete course work at least equivalent to that required for the M.S. degree

For optional concentration see Wildlife Biology and Conservation (p. 306).

Business Administration
School of Management
907-474-4622
www.uaf.edu/som/degrees/graduate/mba/ (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
- M.B.A., Business Administration (p. 255)

M.B.A., Business Administration

Complete the admission process including the following:
- Applications will be reviewed on a continuous basis
- Students with a graduate degree from an accredited institution may be admitted without taking the GMAT or GRE exam.
- 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’s between 3.25 and 2.75 must submit results of the Watson-Glaser Critical Thinking exam. Those with GPA’s below 2.75 must submit results from the GMAT or GRE.
- 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’s between 3.25 and 2.75 must submit results of the
Watson-Glaser Critical Thinking exam. Those with GPA’s below 2.75 must submit results from the GMAT or GRE.

e. Applicants with non-business degrees and GPA’s from 4.00 to 2.75 must submit results of the Watson-Glaser Critical Thinking exam. Those with GPA’s below 2.75 must submit results from the GMAT or GRE.

**Concentrations: Capital Markets, General Management**

**Minimum Requirements for Degree:** 30 credits

**General University Requirements**

Complete the general university requirements. (p. 244)

**Master’s Degree Requirements**

Complete the master’s degree requirements. (p. 247)

**MBA Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

Complete the following capstone course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA F690</td>
<td>Corporate Strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentrations**

Select one of the following concentrations: 15 credits

**Capital Markets**

**General Management**

Total Credits 30 credits

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.

If a student earns grades of two Cs, one D, or one F in courses that are part of his/her MBA program, the student will no longer be in good standing in the MBA program even if his/her 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**

**CAPITAL MARKETS**

This concentration may only be completed on the Fairbanks campus.

Select three of the following: 9 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA F605</td>
<td>Contemporary Topics in Accounting</td>
</tr>
<tr>
<td>MBA F620</td>
<td>Portfolio Theory and Asset Pricing</td>
</tr>
<tr>
<td>MBA F624</td>
<td>Controllership</td>
</tr>
<tr>
<td>MBA F630</td>
<td>Derivative Securities</td>
</tr>
<tr>
<td>MBA F681</td>
<td>Fixed Income Securities and Markets</td>
</tr>
</tbody>
</table>

**MBA F682** Financial Statement Analysis

Select two approved electives at the F400 or F600 level 6 credits

Total Credits 15 credits

**GENERAL MANAGEMENT**

Select three of the following: 9 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA F605</td>
<td>Contemporary Topics in Accounting</td>
</tr>
<tr>
<td>MBA F607</td>
<td>Human Resources Management</td>
</tr>
<tr>
<td>MBA F624</td>
<td>Controllership</td>
</tr>
<tr>
<td>MBA F627</td>
<td>Business Law and Ethics</td>
</tr>
<tr>
<td>MBA F632</td>
<td>Project Management</td>
</tr>
<tr>
<td>MBA F642</td>
<td>Economics of Environmental and Business Sustainability</td>
</tr>
<tr>
<td>MBA F665</td>
<td>Strategic Collaboration</td>
</tr>
<tr>
<td>MBA F673</td>
<td>Innovation Management</td>
</tr>
<tr>
<td>MBA F674</td>
<td>New Venture Development</td>
</tr>
<tr>
<td>MBA F682</td>
<td>Financial Statement Analysis</td>
</tr>
<tr>
<td>MBA F683</td>
<td>Advanced Topics in Marketing</td>
</tr>
<tr>
<td>MBA F691</td>
<td>Advanced Topics in Business</td>
</tr>
</tbody>
</table>

Select two approved electives at the F400 or F600 level 6 credits

Total Credits 15 credits

**Chemistry**

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
www.uaf.edu/chem/ (http://www.uaf.edu/chem)

**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. 253) and environmental chemistry (p. 282) 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. 257)

M.S. Degree

M.S. Degree

M.S. Degree — Chemistry

M.S. Degree — Chemistry

M.S. Degree — Biochemistry and Neuroscience Concentration

M.S. Degree — Biochemistry and Neuroscience Concentration

M.S. Degree — Environmental Chemistry concentration

M.S. Degree — Environmental Chemistry concentration

Minimum Requirements for Degree: 30 credits

General University Requirements

Complete the general university requirements. (p. 244)

Master’s Degree Requirements

Complete the master’s degree requirements. (p. 247)

Program Requirements

Complete a research-based thesis.

CHEM F692 Seminar 2

Complete at least one semester of assisting in an undergraduate chemistry laboratory.

Total Credits 2

Optional Concentrations: Biochemistry and Neuroscience, Environmental Chemistry

M.S. DEGREE — BIOCHEMISTRY AND NEUROSCIENCE CONCENTRATION

Minimum Requirements for Degree: 30 credits

General University Requirements

Complete the general university requirements. (p. 244)

Master’s Degree Requirements

Complete the master’s degree requirements. (p. 247)

Program Requirements

Select three from the following: 9

CHEM F654 Protein Structure and Function
CHEM F657 Molecular Foundations of Gene Expression
CHEM F674 Membrane Biochemistry and Biophysics
CHEM F670 Cellular and Molecular Neuroscience
CHEM F675 Cellular Signaling

Complete a research thesis.

Total Credits 9

M.S. DEGREE — ENVIRONMENTAL CHEMISTRY CONCENTRATION

Minimum Requirements for Degree: 30 credits

General University Requirements

Complete the general university requirements. (p. 244)

Master’s Degree Requirements

Complete the master’s degree requirements. (p. 247)

Program Requirements

Select two from the following: 6

CHEM F605 Aquatic Chemistry
CHEM F606 Atmospheric Chemistry
CHEM F631 Environmental Fate and Transport
CHEM F655 Environmental Toxicology
CHEM F691 Research Presentation Techniques 1
CHEM F692 Seminar 1

Complete approved electives 1 3-6

Complete a research thesis 12

Total Credits 23-26

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:

- Atmospheric Chemistry: CHEM F601, CHEM F605, CHEM F606 and CHEM F631
- Aqueous/Environmental Geochemistry: CHEM F605, CHEM F606 or CHEM F631, GEOS F618 and CHEM F609/GEOS F633.
- 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.

See Biochemistry and Neuroscience (p. 253).

See Environmental Chemistry (p. 282).

Civil Engineering

College of Engineering and Mines
Department of Civil and Environmental Engineering
907-474-7241
M.S. Degree

THE M.C.E. DEGREE IS CURRENTLY SUSPENDED.

Minimum Requirements for Degrees: 30 credits

Civil engineers plan, design and supervise the construction of facilities essential to modern life in both the public and private sectors. These facilities vary widely in nature, size and scope: space launching facilities, offshore structures, bridges, buildings, tunnels, highways, transit systems, dams, airports, irrigation projects, treatment and distribution facilities for water and collection and treatment facilities for wastewater.

Civil engineers use sophisticated technology and employ computer-aided engineering during project phases of design, construction, project scheduling and cost control. Civil engineers are problem solvers involved in community development and improvement. They meet the challenges of pollution, deteriorating infrastructure, traffic congestion, energy needs, floods, earthquakes, urban redevelopment and community planning. The opportunity for creativity is unlimited.

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. 258)
• M.C.E., Civil Engineering (p. 258) — This program is currently suspended.

M.C.E., Civil Engineering

THIS PROGRAM IS CURRENTLY SUSPENDED.

Minimum Requirements for Degree: 30 credits

Complete the following admission requirements:

a. Complete a bachelor’s degree in civil engineering.

b. International students must complete the TOEFL with a score of 575 or better.

Minimum Requirements for Degree: 30 credits

General Education Requirements

Complete the general university requirements. (p. 244)

Master’s Degree Requirements

Complete the master’s degree requirements. (p. 247)
ARCTIC ENGINEERING

CE F603 Arctic Engineering 3
CE F624 Frozen Ground Engineering 3
CE F682 Ice Engineering 3
or GEOS F615 Sea Ice
CE F683 Arctic Hydrology and Hydraulic Engineering 3
ME F685 Arctic Heat and Mass Transfer 3
or ME F642 Advanced Heat Transfer

Approved electives (6 credits for thesis; 12 credits for project) 6-12

Total Credits 21-27

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

CE F601 Engineering Research Communication 3
ENVE F641 Aquatic Chemistry 3
or CHEM F605 Aquatic Chemistry
ENVE F645 Unit Processes: Chemical and Physical 3
ENVE F647 Biotechnology 3

Approved electives (9 credits for thesis; 15 credits for project) 9-15

Total Credits 21-27

1 Recommended electives include: BIOL F657, 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

Personnel, leadership, business communications, marketing electives 1
Design and construction management electives 2 6
Accounting, finance, economics electives 3 3
Design and construction technical electives 4 9
Project only: 3
Select additional approved elective 5

Total Credits 27

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 and courses approved for graduate certificate program (p. 263).
5 Recommended electives include: CE F603 and ENVE F644.

GEOTECHNICAL ENGINEERING

CE F605 Pavement Design 3
CE F622 Foundations and Retaining Structures 3
CE F624 Frozen Ground Engineering 3
CE F625 Soil Stabilization and Embankment Design 3
CE F627 Geotechnical Earthquake Engineering 3
CE F628 Unsaturated Soils Mechanics 3
CE F633 Theory of Elastic Stability 3
CE F635 Numerical Methods for Geomechanics and Soil-Structure Interaction 3

Additional approved electives (6 credits for thesis; 12 credits for project) 6-12

Total Credits 30-36

1 Recommended electives include: CE F422, CE F601, CE F603, CE F637, GE F440 and ME F601.

STRUCTURAL ENGINEERING

CE F601 Engineering Research Communication 3
CE F622 Foundations and Retaining Structures 3
CE F630 Advanced Structural Mechanics 3
CE F633 Theory of Elastic Stability 3
CE F634 Structural Dynamics 3
CE F635 Numerical Methods for Geomechanics and Soil-Structure Interaction 3

Additional approved electives (6 credits for thesis; 12 credits for project) 6-12

Total Credits 24-30

1 Recommended electives include: CE F631, CE F637, CE F640, CE F646 and CE F650.

TRANSPORTATION ENGINEERING

Approved engineering electives (9 credits for thesis; 15 credits for project) 9-15

Additional approved electives 2 12

Total Credits 21-27

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

Select 12 credits from the following: 12

CE F661 Advanced Water Resources Engineering
CE F662 Open Channel and River Engineering
CE F663 Groundwater Dynamics
CE F664 Sediment Transport
CE F683 Arctic Hydrology and Hydraulic Engineering

Additional approved electives (9 credits for thesis; 15 credits for project) 9-15

Total Credits 21-27

1 Recommended electives include: CE F601, CE F603, CE F624, CE F682 and CE F683.
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. 280) for Ph.D. program.

See Water and Environmental Science (p. 305).

Communication, Professional

College of Liberal Arts
Department of Communication
907-474-6591
www.uaf.edu/comm/ (http://www.uaf.edu/comm)

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. 260)

M.A., Communication, Professional
• Complete the following additional admission requirement:
  Submit academic writing sample.

Minimum Requirements for Degree: 30-34 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM F600</td>
<td>Introduction to Professional Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM F601</td>
<td>Communication Research Methodologies: Social Science</td>
<td>3</td>
</tr>
<tr>
<td>COMM F602</td>
<td>Communication Research Methodologies: Human Science</td>
<td>3</td>
</tr>
<tr>
<td>COMM F625</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>COMM F675</td>
<td>Training and Development Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM F680</td>
<td>Communication and Diversity in the Professional World</td>
<td>3</td>
</tr>
<tr>
<td>COMM F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>or COMM F698</td>
<td>Non-Thesis Research/Project</td>
<td></td>
</tr>
</tbody>
</table>

Electives
Select two from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM F622</td>
<td>Interpersonal Interaction</td>
</tr>
<tr>
<td>COMM F631</td>
<td>Teambuilding</td>
</tr>
<tr>
<td>COMM F635</td>
<td>Organizational Culture and Communication</td>
</tr>
<tr>
<td>COMM F642</td>
<td>Health Communication</td>
</tr>
<tr>
<td>COMM F682</td>
<td>Seminar in Communication</td>
</tr>
</tbody>
</table>

Teaching assistants complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM F661</td>
<td>Mentored Teaching in Communication</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Total Credits 31-34

1 Students may take F400- and F600-level courses in art, education, English, journalism, communication, marketing, business administration 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

College of Engineering and Mines
Department of Computer Science
907-474-2777
www.cs.uaf.edu (http://www.cs.uaf.edu)

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 students who have completed a B.S. degree in computer science at most institutions. 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. 260)

M.S., Computer Science
• Complete the UAF admission process including the following:
  1. Submit GRE general and computer science subject exam scores.
  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>Program Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS F600  Professional Software Development</td>
<td>4</td>
</tr>
<tr>
<td>CS F601  Algorithms, Architecture and Languages</td>
<td>4</td>
</tr>
<tr>
<td>CS F690  Graduate Seminar and Project</td>
<td>3</td>
</tr>
<tr>
<td>CS F691  Graduate Seminar and Project</td>
<td>3</td>
</tr>
<tr>
<td>Approved electives</td>
<td>16</td>
</tr>
<tr>
<td>Total Credits</td>
<td>30</td>
</tr>
</tbody>
</table>

Counseling

School of Education
907-474-7341
www.uaf.edu/educ/graduate/ (http://www.uaf.edu/educ/graduate)

M.Ed., Counseling

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. 261)

Certification

• School Counselor Certification Program (p. 262)

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 take 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.
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

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUN F615</td>
<td>Foundations of Counseling</td>
<td>3</td>
</tr>
<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>or COUN F629</td>
<td>Counseling Interventions for Adults</td>
<td>3</td>
</tr>
<tr>
<td>COUN F628</td>
<td>Child and Adolescent Development</td>
<td>3</td>
</tr>
<tr>
<td>COUN F632</td>
<td>Career Development</td>
<td>3</td>
</tr>
<tr>
<td>COUN F630</td>
<td>Appraisal for Counselors</td>
<td>3</td>
</tr>
<tr>
<td>COUN F634</td>
<td>Practicum in Individual Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>
**School Counselor Certification Program**

COUN F636 **Internship I** 2 3
COUN F647 **Professional Ethics** 3
COUN F660 **Cross-Cultural Counseling** 3
COUN F674 **Group Counseling** 3
COUN F686 **Internship II** 2 3
COUN F698 **Non-Thesis Research/Project** 3-6
or COUN F699 **Thesis**
ED F601 **Introduction to Applied Social Science Research** 3

**Concentrations**

Select one from the following concentrations: 6-27

- School Counseling (elementary or secondary)
- K-12 School Counseling (elementary or secondary)
- Clinical Mental Health

**Total Credits** 48-72

**Concentrations**

**SCHOOL COUNSELING**

COUN F646 **School Counseling** 3
Elective credits 3

**Total Credits** 6

**K-12 SCHOOL COUNSELING**

COUN F646 **School Counseling** 3
COUN F687 **Internship III** 2 3
COUN F688 **Internship IV** 2 3

**Total Credits** 9

**CLINICAL MENTAL HEALTH**

COUN F638 **Adult Development** 3
COUN F650 **Cross-Cultural Psychopathology** 3
COUN F666 **Family and Network Therapy** 3
COUN F687 **Internship III** 2 3
Elective credits 6

**Total Credits** 18

**CLINICAL MENTAL HEALTH AND SCHOOL COUNSELING**

Complete the following courses for both clinical mental health concentration and school counseling at one level (elementary or secondary)

COUN F636 **Internship I** 2 3
COUN F638 **Adult Development** 3
COUN F646 **School Counseling** 3
COUN F650 **Cross-Cultural Psychopathology** 3
COUN F666 **Family and Network Therapy** 3
COUN F686 **Internship II** 2 3
COUN F687 **Internship III** 2 3

**Total Credits** 21

**CLINICAL MENTAL HEALTH AND K-12 SCHOOL COUNSELING**

Complete the following courses for both clinical mental health concentration and K-12 school counseling (elementary and secondary)

COUN F636 **Internship I** 2 3
COUN F638 **Adult Development** 3
COUN F646 **School Counseling** 3
COUN F650 **Cross-Cultural Psychopathology** 3
COUN F666 **Family and Network Therapy** 3
COUN F686 **Internship II** 2 3
COUN F687 **Internship III** 2 6
COUN F688 **Internship IV** 2 3

**Total Credits** 27

1. School Counseling students must complete COUN F627.
2. 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.
5. Pass the Counselor Preparation Comprehensive Exam (CPCE).

**Note:** The FBI criminal background check process takes up to three months.

**Minimum Requirements for Degree: 39-45 credits**

**Certification in One Level (Elementary or Secondary)**

Complete the following requirements for certification in one level (Elementary or Secondary):

COUN F615 **Foundations of Counseling** 3
COUN F623 **Counseling Theories and Applications I** 3
COUN F627 Developmental Interventions 3  
COUN F628 Child and Adolescent Development 3  
COUN F632 Career Development 3  
COUN F630 Appraisal for Counselors 3  
COUN F634 Practicum in Individual Counseling 3  
COUN F636 Internship I 1 3  
COUN F646 School Counseling 3  
COUN F647 Professional Ethics 3  
COUN F660 Cross-Cultural Counseling 3  
COUN F674 Group Counseling 3  
COUN F686 Internship II 1 3  

Complete the following optional classes for K-12 school counseling certification (Elementary and Secondary) 0-6  
COUN F687 Internship III 1  
COUN F688 Internship IV 1  

Total Credits 39-45  

1 Additional fee required. Charges are added to fee statements each semester.

Students must take 15 UAF credits. Up to 30 graduate transfer credits from a previous degree program may be applied, as approved by the School of Education counseling program.

Cross-Cultural Studies
College of Liberal Arts
Center for Cross-Cultural Studies
907-474-1902
www.uaf.edu/cxcs/ (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. 263)

M.A., Cross-Cultural Studies
Minimum Requirements for Degree: 36 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Program Requirements
Complete at least 6 credits in a field setting, including minimum of one week camp with elders.

Complete at least 36 semester hours beyond the bachelor’s degree level.

Students may transfer a maximum of 9 hours from another university into their program.

Complete at least 30 of the 36 semester hours at the F600 level.

Satisfactorily complete a comprehensive examination.

Core Courses
CCS F604 Documenting Indigenous Knowledge 3  
CCS F608 Indigenous Knowledge Systems 3  
CCS F612 Traditional Ecological Knowledge 3  
CCS/ED F690 Seminar in Cross-Cultural Studies 3

Cross-Cultural Studies Specialization Courses
Select at least one from the following: 3  
ANS/ED F461 Native Ways of Knowing  
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: 15  
Examples of approved electives:  
ANS F475 Alaska Native Social Change  
CCS F602 Cultural and Intellectual Property Rights  
CCS/ED F603 Field Study Research Methods  
CCS/ED F611 Culture, Cognition and Knowledge Acquisition  
CCS/ED F613 Alaska Standards for Culturally Responsive Schools

CCS F698 Non-Thesis Research/Project 6

Total Credits 36

Design and Construction Management
College of Engineering and Mines
Department of Civil and Environmental Engineering
907-474-7241
http://cem.uaf.edu/cee/

Graduate Certificate
Minimum Requirements for Certificate: 15 credits

The graduate certificate in design and construction management is designed to advance the managerial skills and decision-making abilities of engineers and other professionals in the construction industry. The program was designed in collaboration with construction industry employers and continues to engage industry as a partner in the program. Engineers and other construction professionals will enhance their skills to help prepare them for more responsible jobs and help them advance to more responsible management positions.

The program permits flexibility of course selection within the major rubrics: human relations, communications, construction project management and technical construction areas.

Graduate Certificate
• Graduate Certificate, Design and Construction Management (p. 264)
Graduate Certificate, Design and Construction Management

- Complete the following admission requirements:
  - A four-year ABET college degree in engineering and at least two years' construction management experience;
  - or a four-year non-ABET college degree in engineering, science or mathematics and at least four years construction experience;
  - or a four-year college degree and at least six years construction experience;
  - or at least 10 years construction management experience.

Minimum Requirements for Degree: 15 credits

General University Requirements
Complete the general university requirements. (p. 244)

As part of the general university requirements:
- Enroll in one course per year to remain in good standing.
- The graduate advisory committee will be a construction management certificate faculty member or faculty committee as appointed by the dean of CEM.
- Complete a graduate study plan after completing 5 credits.

Graduate Certificate Requirements
Complete the graduate certificate requirements. (p. 247)

Program Requirements
Select 15 credits from three main construction management rubrics and two associated rubrics as approved by the student's advisory committee:

<table>
<thead>
<tr>
<th>Rubric</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>15   Human Relations and Communication</td>
<td></td>
</tr>
<tr>
<td>4-6  credits from the following:</td>
<td></td>
</tr>
<tr>
<td>ESM F601 Managing and Leading Engineering Organizations</td>
<td></td>
</tr>
<tr>
<td>MBA F607 Human Resources Management</td>
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</tr>
<tr>
<td>Other approved human relations courses</td>
<td></td>
</tr>
<tr>
<td>15   Construction Project Management and Scheduling</td>
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</tr>
<tr>
<td>4-6  credits from the following:</td>
<td></td>
</tr>
<tr>
<td>CE F620 Construction Project Management</td>
<td></td>
</tr>
<tr>
<td>ESM F609 Project Management</td>
<td></td>
</tr>
<tr>
<td>ESM F608 Legal Principles for Engineering Management</td>
<td></td>
</tr>
<tr>
<td>Other approved construction project management courses</td>
<td></td>
</tr>
<tr>
<td>15   Technical Management of Construction and Costs</td>
<td></td>
</tr>
<tr>
<td>4-6  credits from the following:</td>
<td></td>
</tr>
<tr>
<td>CE F451 Construction Cost Estimating and Bid Preparation</td>
<td></td>
</tr>
<tr>
<td>CE F603 Arctic Engineering</td>
<td></td>
</tr>
<tr>
<td>CE F622 Foundations and Retaining Structures</td>
<td></td>
</tr>
<tr>
<td>Other approved technical management of construction and costs courses</td>
<td></td>
</tr>
<tr>
<td>0-3  Business and Financial Aspects of Construction</td>
<td></td>
</tr>
<tr>
<td>0-3  credits from the following:</td>
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</tr>
<tr>
<td>ESM F605 Engineering Economic Analysis</td>
<td></td>
</tr>
<tr>
<td>MBA F602 Accounting for Managers</td>
<td></td>
</tr>
<tr>
<td>Other Technical Areas</td>
<td></td>
</tr>
<tr>
<td>0-3  credits from the following:</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE F603</td>
<td>Arctic Engineering</td>
</tr>
<tr>
<td>ENVE F644</td>
<td>Environmental Management and Permitting</td>
</tr>
</tbody>
</table>

Total Credits: 15

Economics, Resource and Applied

School of Management
Department of Economics
907-474-7461
www.uaf.edu/som/degrees/graduate/msecon/ (http://www.uaf.edu/som/degrees/graduate/msecon)

M.S. Degree
Minimum Requirements for Degree: 30-33 credits

Economics is the study of social activities concerned with the production, distribution and consumption of goods and services. In today’s complex world, nearly all social phenomena and problems have economic aspects. Organized knowledge of the functioning of our economy and its relations with other economic systems is therefore essential to an understanding of the world in which we live.

The economics department offers study leading to the M.S. degree in resource and applied economics. The resource economics program offers a specialization in the economics of natural resources with emphasis in a variety of specific fields possible through interdisciplinary elective courses and thesis research. These might include fisheries, wildlife management, land resources management, agriculture, oil and minerals, water resources or forest management.

The program consists of core course work in micro- and macro-economic theory, mathematical economics, economic methods and courses in the economic theory and public policy of natural resources. Master’s candidates may select a thesis or non-thesis option. Thesis topics, consistent with students’ interest and project requirements, may be selected from current research projects of the department or from one of the several research institutes on campus. Most research projects deal with issues pertinent to the development and management of Alaska’s renewable and nonrenewable resources.

Degree
- M.S., Economics, Resource and Applied (p. 264)

M.S., Economics, Resource and Applied

Thesis Option
Minimum Requirements for Degree: 30 credits

Students may be accepted into the program subject to identified deficiencies being rectified. Unconditional acceptance into the program requires completion of intermediate microeconomics and macroeconomics, basic statistics and one semester of calculus.

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Program Requirements
ECON F601  Microeconomic Theory I  3
ECON F603  Macroeconomic Theory I  3
ECON F623  Mathematical Economics  3
ECON F626  Econometrics  3
ECON F635  Renewable Resource Economics  3
ECON F636  Non-Renewable Resource Economics  3
Thesis 1
ECON F699  Thesis  6
Electives  6
Total Credits  30

1  Complete at least 25 credits at the F600 level.

Non-Thesis Option

Minimum Requirements for Degree: 33 credits

Students may be accepted into the program subject to identified deficiencies being rectified. Unconditional acceptance into the program requires completion of intermediate microeconomics and macroeconomics, basic statistics and one semester of calculus.

General University Requirements

Complete the general university requirements. (p. 244)

Master's Degree Requirements

Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON F601</td>
<td>Microeconomic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>ECON F603</td>
<td>Macroeconomic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>ECON F623</td>
<td>Mathematical Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON F626</td>
<td>Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>ECON F635</td>
<td>Renewable Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON F636</td>
<td>Non-Renewable Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>Non-Thesis  1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON F698</td>
<td>Non-Thesis Research/Project</td>
<td>3</td>
</tr>
<tr>
<td>Electives at the F600 level</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

1  Complete at least 25 credits at the F600 level.

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 www.eed.state.ak.us/TeacherCertification/ (http://www.eed.state.ak.us/TeacherCertification).

Licenses

- Art K-12 Licensure Program toward M.Ed., Secondary Education (p. 266)
- Elementary (K-8) Postbaccalaureate Licensure Program (p. 266)
• Secondary Postbaccalaureate Licensure Program toward M.Ed., Secondary Education (p. 275)
• Special Education K-12 Postbaccalaureate Certificate of Completion (p. 277)

Degrees
• Master of Education in Counseling (p. 267)
• Master of Education in Cross-Cultural Education (p. 267)
• Master of Education in Curriculum and Instruction (p. 268)
• Master of Education in Elementary Education (p. 269)
• Master of Education in Language and Literacy (p. 270)
• Master of Education in Online Innovation and Design (p. 270)
• Master of Education in Secondary Education (p. 271)
• Master of Education in Special Education (p. 273)
• Interdisciplinary Ph.D. (p. 267)

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. 271).)

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. 275).

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. 275) section.

Admission Process and Requirements

Applicants will follow the admission process and requirements listed in the catalog for the secondary postbaccalaureate licensure (p. 275) 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

Minimum Requirements for Licensure: 34 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ED F452</td>
<td>Elementary Internship</td>
<td>3</td>
</tr>
<tr>
<td>ED F453</td>
<td>Secondary Internship</td>
<td>3</td>
</tr>
<tr>
<td>ED F649</td>
<td>Elementary Art Methods</td>
<td>3</td>
</tr>
<tr>
<td>EDSC F402</td>
<td>Methods of Teaching in the Secondary School</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>3</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>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>

Total Credits 34

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 Admissions and 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.

Elementary applicants apply as graduate-level licensure students. They may choose to complete this licensure program as part of the M.Ed. degree in elementary education. However, application to the M.Ed. degree program should be made at the beginning of elementary postbaccalaureate course work to avoid losing credits for
the M.Ed. degree. (See M.Ed. elementary education (p. ) options requirements.) Candidates who enter the elementary postbaccalaureate licensure program are required to have laptop computers prior to enrolling in ED F344 or ED F624.

**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. Three letters of reference that address qualifications and potential as a teacher.
5. A vitae/resume.
6. 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.

**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: 39 credits

**Summer Semester**

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

**Fall Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>Synthesizing the Standards I</td>
<td>2</td>
</tr>
<tr>
<td>ED F478/F678</td>
<td>Math 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>
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</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<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>Synthesizing the Standards II</td>
<td>2</td>
</tr>
<tr>
<td>ED F476</td>
<td>Assessment of Literacy Development</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits** 39

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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. 289).

**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. 261) for more information.

**M.Ed., Cross-Cultural Education**

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: cross-cultural education, curriculum and instruction, language 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

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master of Education Degree Requirements**
Complete the master of education degree requirements. (p. 249)

Complete the admission requirements for the Master of Education Degree.

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
<td>3</td>
</tr>
<tr>
<td>ED/CSS F603</td>
<td>Field Study Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>or ED/CSS F604</td>
<td>Documenting Indigenous Knowledge</td>
<td></td>
</tr>
<tr>
<td>ED F682</td>
<td>Rethinking Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>ED F698</td>
<td>Non-Thesis Research/Project</td>
<td>6</td>
</tr>
<tr>
<td>or ED F699</td>
<td>Thesis</td>
<td></td>
</tr>
</tbody>
</table>

**Cross-Cultural Foundations with Focus on Alaska Context Courses**

Select one of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ED/CSS F610</td>
<td>Education and Cultural Processes</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>ED F619/CCS F618</td>
<td>Cultural Atlases as a Pedagogical Strategy</td>
</tr>
<tr>
<td>ED F620</td>
<td>Language, Literacy and Learning</td>
</tr>
<tr>
<td>ED/CSS F631</td>
<td>Culture, Community and the Curriculum</td>
</tr>
<tr>
<td>ED F681</td>
<td>Place-Based Education</td>
</tr>
</tbody>
</table>

**Electives**

Select at least 12 credits of approved electives in cross-cultural education in consultation with the student’s graduate advisory committee

| Total Credits | 30 |

**M.Ed., Curriculum and Instruction**

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: cross-cultural education, curriculum and instruction, language 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

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master of Education Degree Requirements**
Complete the master of education degree requirements. (p. 249)

Complete the admission requirements for the Master of Education Degree.

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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/CSS F603</td>
<td>Field Study Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>or ED/CSS F604</td>
<td>Documenting Indigenous Knowledge</td>
<td></td>
</tr>
<tr>
<td>ED F612</td>
<td>Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>ED F630</td>
<td>Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>ED F659</td>
<td>Multimedia Tools for Educators</td>
<td>3</td>
</tr>
</tbody>
</table>
M.Ed., Elementary Education

Following completion of the year-long 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. Three letters of reference that address qualifications and potential as a teacher.
5. A vitae/resume.
6. 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.

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

General University Requirements

Complete the general university requirements. (p. 244)

Master of Education Degree Requirements

Complete the master of education degree requirements. (p. 249)

Complete the admission requirements for the graduate-level elementary postbaccalaureate licensure program.

Program Requirements

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<td>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>
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**M.Ed., Language and Literacy**

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: cross-cultural education, curriculum and instruction, language 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

**General University Requirements**

Complete the general university requirements. (p. 244)

**Master of Education Degree Requirements**

Complete the master of education degree requirements. (p. 249)

Complete the admission requirements for the Master of Education Degree.

**Program Requirements**

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</tr>
<tr>
<td>ED F698</td>
<td>Non-Thesis Research/Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Select one graduate-level elective course approved by candidate’s graduate committee 3

Total Credits 30

**Cross-Cultural Foundations with Focus on Alaska Context Courses**

Select one from the following:

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<td></td>
</tr>
<tr>
<td>ED F619/</td>
<td>Cultural Atlases as a Pedagogical Strategy</td>
<td></td>
</tr>
<tr>
<td>CCS F618</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ED F631</td>
<td>Culture, Community and the Curriculum</td>
<td></td>
</tr>
<tr>
<td>ED F681</td>
<td>Place-Based Education</td>
<td></td>
</tr>
<tr>
<td>ED F682</td>
<td>Rethinking Multicultural Education</td>
<td></td>
</tr>
</tbody>
</table>

Select two F600-level education elective courses 6

Total Credits 30

**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: cross-cultural education, curriculum and instruction, language 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

**General Education Requirements**
Complete the general university requirements. (p. 244)

**Master of Education Degree Requirements**

Complete the master of education degree requirements. (p. 249)

Complete the admission requirements for the Master of Education Degree.

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ED F431</td>
<td>Web 2.0 Fundamentals: Participate, Produce, Publish</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 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>
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</tr>
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**Cross-Cultural Foundations with Focus on Alaska Context Courses**

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<tr>
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<td>Rethinking Multicultural Education</td>
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</table>

**Options**

Select one of the following options: 12

1. **Thesis option**
2. **Project option**
3. **Comprehensive exam option**

**Total Credits** 30

**Options**

**THESIS OPTION**

One F600-level Online Innovation and Design Elective 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED/CCS F603</td>
<td>Field Study Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>or ED/CCS F604</td>
<td>Documenting Indigenous Knowledge</td>
<td></td>
</tr>
<tr>
<td>ED F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credits** 12

**PROJECT OPTION**

One F600-level Online Innovation and Design Elective 3

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<tr>
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<tr>
<td>ED F698</td>
<td>Non-Thesis Research/Project</td>
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</tbody>
</table>

**Total Credits** 12

**COMPREHENSIVE EXAM OPTION**

Complete the following classes or comparable electives approved by the student’s graduate advisory committee.

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ED F653</td>
<td>Instructional Design</td>
<td>3</td>
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<tr>
<td>ED F655</td>
<td>Online Pedagogy</td>
<td>3</td>
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<tr>
<td>ED F676</td>
<td>Supporting Learning in Diverse Systems</td>
<td>3</td>
</tr>
<tr>
<td>ED F677</td>
<td>Digital Storytelling</td>
<td>3</td>
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</table>

Complete the comprehensive examination

**Total Credits** 12

**M.Ed., Secondary Education**

Following the completion of the year-long 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.

**Admissions Process and Requirements**

Admission to the secondary postbaccalaureate licensure program toward an M.Ed. in secondary education includes meeting requirements of the UAF Graduate School and of the School of Education. Candidates take five of the licensure courses at the F600 level.

Submit the following information to the UAF Office of Admissions and 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.

Submit the following information to the School of Education:

1. A writing sample.
2. Passing scores from the Alaska Praxis I or Praxis Core ASE exam in reading, writing and mathematics.
3. Academic content testing
   a. Content area exams: Candidates must submit a score report from the relevant content knowledge Praxis II subject 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/).
   b. World language exams: Applicants applying to teach a world language are required to submit Praxis II scores in the target
language and for the ACTFL Oral Proficiency Interview and Test. Applicants must meet the Advanced Low rating for both tests (www.languagetesting.com (http://www.languagetesting.com)). In the target language, write a 2-3 page, well organized, coherent response to one of three prompts (contact SOE secondary program for additional information).

4. Demonstrated evidence of content competency in one of the UAF-approved secondary endorsement areas: art, biology, Earth science, economics, English, French, German, political science, history, mathematics, physics, political science and Spanish.
   a. The applicant holds a degree in an approved UAF secondary endorsement area or;
   b. Those applicants who do not hold a degree in the academic content area that they expect to teach must have documentation of content competency reviewed by a secondary program faculty review team before applying to the program. Additional course work may be required to enter the program.

5. Initial content preparation: complete a checklist of each content area you expect to teach.

6. Applicants must submit a placement packet; contact the School of Education for specifics. The School of Education determines placement approval, change or termination.

7. All applicants will be required to interview with secondary faculty as part of the admission process.

**Application Review Process**

Applications are due March 1 (summer or fall admissions) and Oct. 15 (spring admissions), and are reviewed thereafter for admission. A candidate may be admitted, not admitted or admitted with stipulations. Stipulations are specified when additional development in a particular area(s) is needed before beginning a secondary postbaccalaureate program.

The UAF School of Education coordinates the review and evaluation of the candidate’s qualifications, professional experiences and academic performance with appropriate academic departments based on the contents of his/her application. The secondary postbaccalaureate program is a selective teacher education program. A comprehensive system including multiple measures is used to assess personal characteristics, communication skills and basic skills of candidates preparing to teach. Multiple assessment measures include a review of transcripts, content area strengths and/or Praxis II scores, personal statement and/or writing proficiency exams, Praxis I and/or GRE exam scores, and letters of reference. A personal interview will be required as part of the admission process.

Minimum Requirements for Degree: 31 credits

**General University Requirements**

Complete the general university requirements. (p. 244)

**Master of Education Degree Requirements**

Complete the master of education degree requirements. (p. 249)

6. Complete the admission requirements for the graduate-level elementary postbaccalaureate licensure program.

**Program Requirements**

<table>
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<tr>
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<th>Credits</th>
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<tr>
<td>EDSC F402</td>
<td>Methods of Teaching in the Secondary School (or one elective course approved by candidate’s graduate committee)</td>
<td>3</td>
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<tr>
<td>EDSC F614</td>
<td>Learning, Development and Special Needs Instruction or EDSE F622</td>
<td>3</td>
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<tr>
<td>or EDSE F622</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td></td>
</tr>
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</table>

Select one from the following:

- EDSC F631 Secondary Instruction and Assessment in the Content Area
- EDSC F632 English/Language Arts Secondary Instruction and Assessment
- EDSC F633 Mathematics Secondary Instruction and Assessment
- EDSC F634 Science Secondary Instruction and Assessment
- EDSC F635 Social Studies Secondary Instruction and Assessment
- EDSC F636 Art Secondary Instruction and Assessment
- EDSC F637 World Language Secondary Instruction and Assessment
- EDSC F642 Technology Applications in Education I
- EDSC F643 Technology Application in Education II
- EDSC F657 Multicultural Education and School-Community Relations
- EDSC F658 Classroom Organization and Management
- EDSC F601 Introduction to Applied Social Science Research

**Thesis, Project or Comprehensive Exam Option**

Select the thesis, project or comprehensive exam option

<table>
<thead>
<tr>
<th>Option</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis Option</td>
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<tr>
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**Options**

**THESIS OPTION**

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<td>ED F699</td>
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Total Credits 9

**PROJECT OPTION**

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Total Credits 9

**COMPREHENSIVE EXAM OPTION**

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<tr>
<td>EDSC F407</td>
<td>Developing Literacy in the Content Areas (or one elective course approved by candidate’s graduate committee)</td>
<td>3</td>
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</table>

6 graduate-level elective credits approved by candidate’s graduate committee 6
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 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.

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: cross-cultural education, curriculum and instruction, language 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 a particular area 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: 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 course or comparable transfer courses:
      ED F245 Child Development 3
      Select one from the following: 3
      ED F201 Introduction to Education
      EDSC F205 Introduction to Secondary Education
      EDSC F415 Foundations of Modern Educational Practice
      ED F624 Foundations of Education in Alaska: From Segregation to Standards
      EDSE F482 Inclusive Classrooms for All Children 3
   c. An Alaska studies course approved by the Alaska Department of Education and Early Development. See http://education.alaska.gov/teachercertification/.
   d. A multicultural education/cross-cultural communication course approved by the Alaska Department of Education and Early Development. See http://education.alaska.gov/teachercertification/.
   e. Passing scores on the Praxis Academic Skills for Educators test (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 www.eed.state.ak.us/teachercertification/prof.html (http://www.eed.state.ak.us/teachercertification/prof.html). Candidates should consult the
employing school district to determine preferred tests based on teaching assignment.

All prerequisite courses must be completed with a minimum final grade of B. Once the admission requirements, prerequisite courses and testing requirements have been met, applicants will be formally admitted to the program.

### Program Requirements for Certified Teachers

Minimum Requirements for Degree: 36 credits

<table>
<thead>
<tr>
<th>General University Requirements</th>
<th>Complete the general university requirements. (p. 244)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Ed. Degree Requirements</td>
<td>Complete the Master of Education degree requirements. (p. 249)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
<th>ED F601 Introduction to Applied Social Science Research 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F603 Field Study Research Methods 3</td>
<td>ED F604 Documenting Indigenous Knowledge 3</td>
</tr>
<tr>
<td>EDSE F610 Assessment of Students with Disabilities 3</td>
<td>EDSE F612 Curriculum, Management and Strategies I: Low Incidence 3</td>
</tr>
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<td>EDSE F612 Curriculum, Management and Strategies I: Low Incidence 3</td>
<td>EDSE F622 Curriculum, Management and Strategies II: High Incidence 3</td>
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<tr>
<td>EDSE F622 Curriculum, Management and Strategies II: High Incidence 3</td>
<td>EDSE F625 Teaching Mathematics to Special Learners 3</td>
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<tr>
<td>EDSE F625 Teaching Mathematics to Special Learners 3</td>
<td>EDSE F632 Special Education Law: Principles and Practices 3</td>
</tr>
<tr>
<td>EDSE F632 Special Education Law: Principles and Practices 3</td>
<td>EDSE F677 English Language Arts Assessment, Curriculum and Strategies for Special Learners 3</td>
</tr>
<tr>
<td>EDSE F677 English Language Arts Assessment, Curriculum and Strategies for Special Learners 3</td>
<td>EDSE F678 Special Education Clinical Practice: Initial 3</td>
</tr>
<tr>
<td>EDSE F680 Special Education Clinical Practice 1,2 3</td>
<td>Select three from the following elective courses as approved by the candidate’s graduate committee: 9</td>
</tr>
<tr>
<td>EDSE F605 Early Childhood Special Education</td>
<td>EDSE F624 Social/Emotional Development, Assessment and Intervention 3</td>
</tr>
<tr>
<td>EDSE F624 Social/Emotional Development, Assessment and Intervention 3</td>
<td>EDSE F633 Autism and Other Developmental Disabilities: Communication and Social Interventions 3</td>
</tr>
<tr>
<td>EDSE F642 Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions 3</td>
<td>EDSE F648 Understanding FASD: Diagnosis, Intervention and Strategies 3</td>
</tr>
<tr>
<td>EDSE F648 Understanding FASD: Diagnosis, Intervention and Strategies 3</td>
<td>Complete comprehensive examination 3</td>
</tr>
</tbody>
</table>

| Total Credits | 36 |

1 Additional fee required. Charges are added to fee statements every semester.

2 Students pursuing a K-12 special education certificate must complete clinical practice in a public school setting.

3 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>General University Requirements</th>
<th>Complete the general university requirements. (p. 244)</th>
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</thead>
<tbody>
<tr>
<td>Master of Education Degree Requirements</td>
<td>Complete the Master of Education degree requirements. (p. 249)</td>
</tr>
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</table>

<table>
<thead>
<tr>
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<td>EDSE F648 Understanding FASD: Diagnosis, Intervention and Strategies 3</td>
<td>Complete comprehensive examination 3</td>
</tr>
</tbody>
</table>

| Total Credits | 39 |

1 Additional fee required. Charges are added to fee statements every semester.
Students pursuing a K-12 special education certificate must complete clinical practice in a public school setting.

Must be enrolled in 3 graduate credits the semester the comprehensive exam is completed.

Program Requirements for M.Ed. Degree Without Certification

General University Requirements
Complete the general university requirements. (p. 244)

Master of Education Degree Requirements
Complete the Master of Education degree requirements. (p. 249)

Prerequisite: EDSE F482 or comparable transfer course from another institution.

Program Requirements

<table>
<thead>
<tr>
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<td>3</td>
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<tr>
<td>ED F603</td>
<td>Field Study Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>or ED/CCS F604</td>
<td>Documenting Indigenous Knowledge</td>
<td></td>
</tr>
<tr>
<td>EDSE F610</td>
<td>Assessment of Students with Disabilities</td>
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</tr>
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<td>EDSE F612</td>
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<td>EDSE F625</td>
<td>Teaching Mathematics to Special Learners</td>
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</tr>
<tr>
<td>EDSE F632</td>
<td>Special Education Law: Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F677</td>
<td>English Language Arts Assessment, Curriculum and Strategies for Special Learners</td>
<td>3</td>
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</table>

Select four from the following elective courses as approved by the candidate’s graduate committee: 12

<table>
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<tr>
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<td>EDSE F640</td>
<td>Culturally Responsive Collaboration: Working with Parents, Colleagues and Paraprofessionals</td>
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<td>EDSE F642</td>
<td>Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions</td>
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<tr>
<td>EDSE F648</td>
<td>Understanding FASD: Diagnosis, Intervention and Strategies</td>
</tr>
</tbody>
</table>

Complete comprehensive examination 1

Total Credits 36

1 Must be enrolled in 3 graduate credits the semester the comprehensive exam is completed.

Secondary Postbaccalaureate Licensure Program toward M.Ed., Secondary Education

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. ) option.)

Student outcomes for the program are based on the Standards for Alaska’s Teachers located at 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 finger print 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.

Admissions Process and Requirements

Admission to the secondary postbaccalaureate licensure program toward an M.Ed. in secondary education includes meeting requirements of the UAF Graduate School and of the School of Education. Candidates take five of the licensure courses at the F600 level.

Submit the following information to the UAF Office of Admissions and 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.

Submit the following information to the School of Education:

1. A writing sample.
2. Passing scores from the Alaska Praxis I or Praxis Core ASE exam in reading, writing and mathematics.
3. Academic content testing
   a. Content area exams: Candidates must submit a score report from the relevant content knowledge Praxis II subject 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/).
   b. World language exams: Applicants applying to teach a world language are required to submit Praxis II scores in the target language and for the ACTFL Oral Proficiency Interview and Test. Applicants must meet the Advanced Low rating for both tests (www.languagetesting.com (http://www.languagetesting.com)). In the target language, write a 2-3 page, well organized, coherent response to one of three prompts (contact SOE secondary program for additional information).
4. Demonstrated evidence of content competency in one of the UAF-approved secondary endorsement areas: art, biology, Earth science,
economics, English, French, German, political science, history, mathematics, physics, political science and Spanish.

a. The applicant holds a degree in an approved UAF secondary endorsement area or;

b. Those applicants who do not hold a degree in the academic content area that they expect to teach must have documentation of content competency reviewed by a secondary program faculty review team before applying to the program. Additional course work may be required to enter the program.

5. Initial content preparation: complete a checklist of each content area you expect to teach.

6. Applicants must submit a placement packet; contact the School of Education for specifics. The School of Education determines placement approval, change or termination.

7. All applicants will be required to interview with secondary faculty as part of the admission process.

**Application Review Process**

Applications are due March 1 (summer or fall admissions) and Oct. 15 (spring admissions), and are reviewed thereafter for admission. A candidate may be admitted, not admitted or admitted with stipulations. Stipulations are specified when additional development in a particular area(s) is needed before beginning a secondary postbaccalaureate program.

The UAF School of Education coordinates the review and evaluation of the candidate’s qualifications, professional experiences and academic performance with appropriate academic departments based on the contents of his/her application. The secondary postbaccalaureate program is a selective teacher education program. A comprehensive system including multiple measures is used to assess personal characteristics, communication skills and basic skills of candidates preparing to teach. Multiple assessment measures include a review of transcripts, content area strengths and/or Praxis II scores, personal statement and/or writing proficiency exams, Praxis I and/or GRE exam scores, and letters of reference. A personal interview will be required as part of the admission process.

**Program Requirements**

Minimum Requirements for Degree: 31-37 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>EDSC F402</td>
<td>Methods of Teaching in the Secondary School</td>
<td>3</td>
</tr>
<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 F614</td>
<td>Learning, Development and Special Needs Instruction</td>
<td>3</td>
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<tr>
<td>or EDSE F622</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
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<tr>
<td>EDSC F642</td>
<td>Technology Applications in Education I</td>
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<tr>
<td>EDSC F643</td>
<td>Technology Application in Education II</td>
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<tr>
<td>EDSC F657</td>
<td>Multicultural Education and School-Community Relations</td>
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<td>EDSC F658</td>
<td>Classroom Organization and Management</td>
<td>3</td>
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EDSC F471 Secondary Teaching: School Internship I and Seminar 3
EDSC F472 Secondary Teaching: School Internship II and Seminar 3-9
Select one of the following: 1
   EDSC F632 English/Language Arts Secondary Instruction and Assessment 3
   EDSC F633 Mathematics Secondary Instruction and Assessment
   EDSC F634 Science Secondary Instruction and Assessment
   EDSC F635 Social Studies Secondary Instruction and Assessment
   EDSC F636 Art Secondary Instruction and Assessment
   EDSC F637 World Language Secondary Instruction and Assessment

Total Credits 31-37

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.

**Admissions Requirements for Certified Teachers**

- Complete the following admission requirements:
  1. Admission requirements for the graduate program.
  2. Current teaching certificate or equivalent course work towards an Alaska teaching certificate.
Admissions 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 courses or comparable transfer courses:
         - ED F245 Child Development (3)
         - Select one of the following:
           - ED F201 Introduction to Education
           - EDSC F205 Introduction to Secondary Education
           - EDSC F415 Foundations of Modern Educational Practice
           - ED F624 Foundations of Education in Alaska: From Segregation to Standards
         - EDSE F482 Inclusive Classrooms for All Children (3)
      iv. An Alaska studies course approved by the Alaska Department of Education and Early Development. See 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/.
      vi. Passing scores on the Praxis Academic Skills for Educators (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 www.eed.state.ak.us/teachercertification/prof.html (http://www.eed.state.ak.us/teachercertification/prof.html). Candidates should consult the employing school district to determine preferred tests based on teaching assignment.
      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 www.eed.state.ak.us/teachercertification/prof.html (http://www.eed.state.ak.us/teachercertification/prof.html).
   2. All prerequisite courses must be completed with a minimum final grade of B. Once the admission requirements, prerequisite courses and testing requirements have been met, applicants will be formally admitted to the program.

Program Requirements for Certified Teachers

Minimum Requirements for Certification: 24 credits

General University Requirements
Complete the general university requirements. (p. 244)

Program Requirements

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<tr>
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</tr>
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</tr>
<tr>
<td>EDSE F680</td>
<td>Special Education Clinical Practice 1,2</td>
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Electives

Select one of the following:

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<tr>
<td>EDSE F642</td>
<td>Autism Spectrum Disorders and Other Developmental Disabilities: Sensory and Behavioral Interventions</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F648</td>
<td>Understanding FASD: Diagnosis, Intervention and Strategies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 24

1. Additional fee required. Charges are added to fee statements every semester.
2. Students pursuing a K-12 special education certificate must complete clinical practice in a public school setting.

Program Requirements for Initial Certification

Minimum Requirements for Certification: 27 credits

General University Requirements
Complete the general university requirements. (p. 244)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE F610</td>
<td>Assessment of Students with Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F612</td>
<td>Curriculum, Management and Strategies I: Low Incidence</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F622</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F625</td>
<td>Teaching Mathematics to Special Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDSE F632</td>
<td>Special Education Law: Principles and Practices</td>
<td>3</td>
</tr>
</tbody>
</table>
Special Education Clinical Practice: Autism Spectrum Disorders and Other Developmental Disabilities

Autism Spectrum Disorders and Other Developmental Disabilities

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 1,2 3

Electives
Select 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

Total Credits 27

1 Additional fee required. Charges are added to fee statements every semester.
2 Students pursuing a K-12 special education certificate must complete a clinical practice in a public school setting.

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.

Electrical Engineering

College of Engineering and Mines
Department of Electrical and Computer Engineering
907-474-7137
http://cem.uaf.edu/ece/

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. Main areas of research include communications, radar, lidar and sonar remote sensing, instrumentation and microwave circuit design, electric power and energy systems, digital and computer engineering, nanotechnology, controls, and robotics. Current research topics include high-latitude satellite communications, rocket telemetry, radio wave propagation, ultra-wideband wireless communications, electromagnetic and acoustic wave propagation, remote biomedical and environmental instrumentation, microwave design, digital signal processing, digital and physical electronics, computer applications, remote hybrid electric power systems, electric power system design and analyses, electric power quality improvement, system identification, simulation, computer-controlled systems, control theory, robotics, and automation.

A number of on- and off-campus research facilities are available to students. Satellite, rocket and ground-based communication studies are carried out on campus and at Poker Flat Research Range, the only university-operated rocket range in the world. The Space Systems Engineering Laboratory provides students hands-on experience in all aspects of space system engineering through a design/build/launch paradigm applied to balloon and rocket payloads as well as small satellites. The Alaska Center for Unmanned Aircraft Systems Integration affords opportunities to work with drones and other UAVs. Department research laboratories include microwave, wireless communications, ultra-wide-band technology, waves, power electronics/robotics, instrumentation and digital laboratories.

Alaska’s environment and remote location provide unique 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. 279)

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

General University Requirements
Complete the general university requirements. (p. 244)

**Master’s Degree Requirements**
Complete the master’s degree requirements. (p. 247)

**Program Requirements**
Select one from the following options:

<table>
<thead>
<tr>
<th>Thesis</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Thesis Project</td>
<td></td>
</tr>
<tr>
<td>Non-Thesis Course Work</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 32

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**THESIS**

EE F699 Thesis 6-12

Additional credits at F600-level 26

**Total Credits** 32-38

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**NON-THESIS PROJECT**

EE F698 Non-Thesis Research/Project 6

Additional credits at F600-level 26

**Total Credits** 32

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1 An oral project presentation and defense is required. The project will be archived in the UAF Rasmuson Library.

**NON-THESIS COURSEWORK**

Additional credits at F600-level 26

**Total Credits** 26

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See Engineering (p. 280) for Ph.D. program.

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**Engineering**

College of Engineering and Mines
907-474-7241
http://cem.uaf.edu/academics/programs/

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**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:** 30 credits

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**General University Requirements**
Complete the general university requirements. (p. 244)

**Ph.D. Degree Requirements**
Complete the Ph.D. degree requirements. (p. 248)

**As part of the Ph.D. degree requirements:**
Complete at least 18 credits of course work beyond the M.S. degree.
Complete at least three full-time semesters of residency, which may include a summer semester. 1
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.
Complete a thesis that is a substantial contribution to the body of knowledge in engineering and pass an oral defense of thesis.

**Total Credits** 18

1 Residency is defined as living in the Fairbanks area, working with the student’s graduate advisor and graduate committee, while taking courses at UAF.

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**English**

College of Liberal Arts
Department of English
907-474-7193
http://www.uaf.edu/english/

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**M.A., M.F.A., M.F.A./M.A. Degrees**
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. 281)
- M.F.A., Creative Writing (p. 281)
- M.F.A./M.A., Combined Degree, Creative Writing and Literature (p. 282)

M.A., English

- Complete the following admission requirements:
  a. Submit GRE scores.
  b. Submit academic writing sample.

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)
Pass a written comprehensive examination based on a standardized reading list ¹
Students may advance to candidacy when their advisory committee deems that they have made satisfactory progress toward completion of their degree.
Pass an oral defense of the thesis or non-thesis project.

Program Requirements
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F601</td>
<td>3</td>
</tr>
<tr>
<td>ENGL F685</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
Select three from the following:
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F603</td>
<td></td>
</tr>
<tr>
<td>ENGL F604</td>
<td></td>
</tr>
<tr>
<td>ENGL F606</td>
<td></td>
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<tr>
<td>ENGL F607</td>
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<tr>
<td>ENGL F608</td>
<td></td>
</tr>
<tr>
<td>ENGL F614</td>
<td></td>
</tr>
</tbody>
</table>

M.F.A., Creative Writing

- Complete the following admission requirements:
  a. Submit GRE scores.
  b. Submit creative writing sample.

Minimum Requirements for Degree: 45 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Program Requirements
Select and pass a written comprehensive examination ¹

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F615</td>
<td>15-24</td>
</tr>
<tr>
<td>Total Credits</td>
<td>36-45</td>
</tr>
</tbody>
</table>

THESIS OPTION
Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL F699</td>
<td>6</td>
</tr>
<tr>
<td>ENGL electives</td>
<td>18</td>
</tr>
<tr>
<td>Pass an oral defense of the thesis.</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>24</td>
</tr>
</tbody>
</table>

NON-THESIS OPTION
Minimum Requirements for Degree: 36 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional approved ENGL F600-level electives</td>
<td>9</td>
</tr>
<tr>
<td>ENGL F698</td>
<td>6</td>
</tr>
<tr>
<td>A research paper which the advisory committee judges to be of publishable quality.</td>
<td></td>
</tr>
<tr>
<td>Pass an oral defense of the non-thesis project.</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>15</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.
Students may advance to candidacy when their advisory committee deems that they have made satisfactory progress in both academic and writing areas.

ENGL F601  Theory, Criticism and Methods  3
ENGL F671  Writers' Workshop  9
ENGL F685  Teaching College Composition (or ENGL F600-level elective course)  3
ENGL F699  Thesis  6
ENGL approved electives  6
Literature seminars  4

Select two from the following:
ENGL F681  Forms of Poetry  3
ENGL F682  Forms of Fiction  3
ENGL F684  Forms of Nonfiction Prose  3
ENGL F688  Writing for Film and Television  3

Total Credits  45

1 Based on a standardized reading list; examination to be taken no later than student's fourth semester of work. 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 Minimum of four to be determined by student's advisory committee.

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.

**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).

**Environmental Chemistry**

College of Natural Science and Mathematics
Department of Chemistry and Biochemistry
907-474-5510
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 center 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 focusing on environmental chemical problems should see the M.S. Chemistry with concentration in Environmental Chemistry program.

**Degree**

- Ph.D., Environmental Chemistry (p. 283)

**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

**General University Requirements**

Complete the general university requirements. (p. 244)

**Ph.D. Degree Requirements**

Complete the Ph.D. degree requirements. (p. 248)

**Program Requirements**

Select three from the following:

- CHEM F605 Aquatic Chemistry
- CHEM F606 Atmospheric Chemistry
- CHEM F631 Environmental Fate and Transport
- CHEM F655 Environmental Toxicology

**Seminar Courses**

- CHEM F691 Research Presentation Techniques
- CHEM F692 Seminar

Complete approved electives 1 3-6

Complete a thesis 18

Total Credits 32-35

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:

- Atmospheric Chemistry: CHEM F601, CHEM F605, CHEM F606 and CHEM F631
- Aqueous/Environmental Geochemistry: CHEM F605, CHEM F606 or CHEM F631, GEO F618 and CHEM F609/GEOS F633.
- 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.

See Biochemistry and Neuroscience (p. 253).

See Chemistry (p. 256).

**Fisheries**

School of Fisheries and Ocean Sciences

907-474-7289

www.sfos.uaf.edu/academics/ (http://www.sfos.uaf.edu/academics)

**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. 283)
- Ph.D., Fisheries (p. 284)

**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

**General University Requirements**

Complete the general university requirements. (p. 244)

**Master’s Degree Requirements**

Complete the master’s degree requirements. (p. 247)

**Program Requirements**

- FISH F699 Thesis 6-12
- STAT F401 Regression and Analysis of Variance 4
- Graduate seminars 2

Select one from the following emphasis areas: 9-14

- Fisheries Emphasis
- Seafood Science Emphasis

Total Credits 21-32

**Fisheries Emphasis**

Select one from the following under each area: 9-11

- Biology and Ecology of Fish and Shellfish
  - FISH F612 Fish Conservation Biology
Seafood Science Emphasis

FISH F661 Seafood Processing and Preservation 3
FISH F662 Seafood Composition and Analysis 3
Select one of the following from two of the three core areas: 6-8

Biology and Ecology of Fish and Shellfish
FISH F612 Fish 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

Total Credits 9-11

Ph.D., Fisheries

- Complete the following admission requirement:
  a. 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.
  b. 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. 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
   1. attained a GPA of at least 3.5 at the undergraduate level, or
   2. 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: 18 credits

Geological Engineering

College of Engineering and Mines
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. 285)

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 engineering and complete the following courses:

Select one of the following: 6-8

| GEOS F262 | Rocks and Minerals |
| GEOS F332 | and Ore Deposits and Structure |
| GEOS F322 | Stratigraphy and Sedimentation |
| GEOS F314 | and Structural Geology |
| GE F365 | Geological Materials Engineering |
| or MIN F370 | Rock Mechanics |
| GE F405 | Exploration Geophysics |
| and GE F420 | and Subsurface Hydrology |

Total Credits 15-17

Complete a bachelor’s degree in geology and complete the following courses:

| ES F208 | Mechanics |
| ES F331 | Mechanics of Materials |
| ES F341 | Fluid Mechanics |
| GE F365 | Geological Materials Engineering |
| or MIN F370 | Rock Mechanics |
| GE F405 | Exploration Geophysics |
| GE F420 | Subsurface Hydrology |
| MIN F408 | Mineral Valuation and Economics |

Total Credits 23

Complete a bachelor’s degree in the natural sciences and complete the following:

| ES F208 | Mechanics |
| ES F331 | Mechanics of Materials |
| ES F341 | Fluid Mechanics |

Select one from the following: 6-8

| GEOS F262 | Rocks and Minerals |
| GEOS F332 | and Ore Deposits and Structure |
| GEOS F322 | Stratigraphy and Sedimentation |
| GEOS F314 | and Structural Geology |
| GE F365 | Geological Materials Engineering |
| or MIN F370 | Rock Mechanics |
| GE F405 | Exploration Geophysics |
| GE F420 | Subsurface Hydrology |
| MIN F408 | Mineral Valuation and Economics |

Total Credits 29-31

Submit GRE scores.

Thesis Option
Minimum Requirements for Degree: 30 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Thesis Requirements
Select four from the following: 12

| GE F430 | Geomechanical Instrumentation |
| GE F440 | Slope Stability |
| GE F610 | Subsurface Hydrology |
| GE F620 | Advanced Groundwater Hydrology |
| GE F622 | Advanced Soil Physics |
| GE F624 | Stochastic Hydrology and Geohydrology |
| GE F626 | Thermal Geotechnics |
| GE F635 | Advanced Geostatistical Applications |
| GE F665 | Advanced Geological Materials Engineering |
| GE F666 | Advanced Engineering Geology |
| GE F668 | Tunneling Geotechniques |
| MIN F621 | Advanced Mineral Economics |
| MIN F673 | Advanced Rock Mechanics |
| Geological engineering courses and technical electives | 11 |
| GE F692 | Graduate Seminar |
| GE F699 | Thesis |

Total Credits 30

Non-Thesis Option
Minimum Requirements for Degree: 33 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Non-Thesis Requirements
Select five from the following: 15

| GE F430 | Geomechanical Instrumentation |
| GE F440 | Slope Stability |
| GE F610 | Subsurface Hydrology |

Total Credits
Geophysics
College of Natural Science and Mathematics
Department of Geosciences
907-474-7565
www.uaf.edu/geology/ (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. 286)
• Ph.D., Geophysics (p. 287)

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

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)
Complete 6-12 thesis credits
Complete any deficiencies concurrently with this degree.
Submit a written thesis proposal and pass an oral comprehensive examination centered on this proposal.
Complete and submit a written thesis and pass an oral defense of thesis.

Geophysics Core Requirements

GEOS F631 Foundations of Geophysics 4
GEOS F682 Geoscience Seminar (fall semester) 1
Select 6 credits from relevant graduate-level courses agreed by the advisory committee or select one from the following concentrations:
Solid-Earth Geophysics
Snow, Ice and Permafrost Geophysics
Remote Sensing

Select 7 credits of courses approved by the advisory committee 7
GEOS F699 Thesis 6
Thesis credits or credits from courses that are F400-level or higher. 1

Total Credits 30

1 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

Select 6 credits from the following:

GEOS F604 Seismology
GEOS F605 Geochronology
GEOS F626 Applied Seismology
GEOS F613 Global Tectonics
GEOS F655 Tectonic Geodesy
GEOS F671 Volcano Seismology

Total Credits 6

SNOW, ICE AND PERMAFROST GEOPHYSICS

Select 6 credits from the following:

GEOS F614 Ice Physics
GEOS F615 Sea Ice
GEOS F616 Permafrost
GEOS F617 Glaciers

Total Credits 6

REMOTE SENSING

Select 6 credits from the following:

GEOS F654 Visible and Infrared Remote Sensing
GEOS F657 Microwave Remote Sensing
GEOS F622 Digital Image Processing in the Geosciences
GEOS F676 Remote Sensing of Volcanic Eruptions
GEOS F639 InSar and Its Applications
ATM F613 Atmospheric Radiation

Total Credits 6

Ph.D., Geophysics

• Complete the following admission requirement:
  1. Submit GRE scores.
  2. 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:

a. At least one first-authored manuscript published, accepted or submitted for publication in a peer-reviewed scientific journal
b. Receipt of an NSF, NIH or similar prestigious pre-doctoral fellowship.
c. Demonstrated research proficiency AND either
   1. attained a GPA of at least 3.5 in mathematics and science courses at the undergraduate level, or
   2. 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

General University Requirements

Complete the general university requirements. (p. 244)

Master's Degree Requirements

GEOS F631 Foundations of Geophysics 4
GEOS F682 Geoscience Seminar (fall semester) 1

Select 6 credits from relevant graduate-level courses agreed by the advisory committee, or select one of the following concentrations:

Solid-Earth Geophysics

Select 6 credits from the following:

GEOS F604 Seismology
GEOS F605 Geochronology
GEOS F626 Applied Seismology
GEOS F613 Global Tectonics
GEOS F655 Tectonic Geodesy
GEOS F671 Volcano Seismology

Snow, Ice and Permafrost Geophysics

Select 6 credits from the following:

GEOS F614 Ice Physics
GEOS F615 Sea Ice
GEOS F616 Permafrost
GEOS F617 Glaciers

Remote Sensing

Select 6 credits from the following:

GEOS F654 Visible and Infrared Remote Sensing
GEOS F657 Microwave Remote Sensing
GEOS F622 Digital Image Processing in the Geosciences
GEOS F676 Remote Sensing of Volcanic Eruptions
GEOS F639 InSar and Its Applications
ATM F613 Atmospheric Radiation

Advanced Skills Categories

Select 3 credits each in two of the following advanced skills categories:

Digital Signal Analysis and Remote Sensing

GEOS F654 Visible and Infrared Remote Sensing
GEOS F657 Microwave Remote Sensing
GEOS F622 Digital Image Processing in the Geosciences

Statistics and Parameter Estimation

PHYS F628 Digital Time Series Analysis
GEOS F627 Inverse Problems and Parameter Estimation
STAT F401 Regression and Analysis of Variance
STAT F461 Applied Multivariate Statistics
ATM F610 Analysis Methods in Meteorology and Climate
Mathematical Methods

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH F421</td>
<td>Applied Analysis</td>
</tr>
<tr>
<td>MATH F614</td>
<td>Numerical Linear Algebra</td>
</tr>
<tr>
<td>MATH F615</td>
<td>Numerical Analysis of Differential Equations</td>
</tr>
<tr>
<td>MATH F661</td>
<td>Optimization</td>
</tr>
<tr>
<td>ME F601</td>
<td>Finite Element Analysis in Engineering</td>
</tr>
</tbody>
</table>

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. 248)
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.

Total Credits 18-24

Concentrations

GEOGRAPHY
Select 12 geography-related credits at the F600 level as approved by the graduate advisory committee.

Total Credits 12

 GEOLOGY
Select 12 credits at the F600 level as approved by the graduate advisory committee.

Total Credits 12

Ph.D., Geoscience

Complete the following admission requirement:
   a. Submit GRE scores.

Concentrations: Geography, Geology

Minimum Requirements for Degree: 18 credits

General University Requirements

Complete the general university requirements. (p. 244)
Complete the course work requirements for the appropriate M.S. concentration.

Ph.D. Degree Requirements

Complete the Ph.D. degree requirements. (p. 248)
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.

Total Credits 18

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. 20) 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. 19).

Indigenous Studies
College of Liberal Arts
College of Rural and Community Development
School of Education
907-474-7464
www.uaf.edu/cxcs/indigenousphd/ (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 five thematic areas of study: indigenous studies/research, indigenous knowledge systems, indigenous education/pedagogy, indigenous languages and indigenous leadership. 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. 289)

Ph.D., Indigenous Studies
Minimum Requirements for Degree: 48 credits

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248)
Complete required and elective courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
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</table>

Core Courses
Select two from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ANL F601</td>
<td>Seminar in Language Revitalization</td>
</tr>
<tr>
<td>ANTH F631</td>
<td>Linguistic Anthropology: Language, Thought and Action</td>
</tr>
<tr>
<td>ANTH F646</td>
<td>Economic Anthropology</td>
</tr>
<tr>
<td>ANTH/BIOL/ECON/NRM F647</td>
<td>Global to Local Sustainability</td>
</tr>
<tr>
<td>ANTH/BIOL/ECON/NRM F649</td>
<td>Integrated Assessment and Adaptive Management</td>
</tr>
<tr>
<td>CCS F602</td>
<td>Cultural and Intellectual Property Rights</td>
</tr>
<tr>
<td>CCS/ED F610</td>
<td>Education and Cultural Processes</td>
</tr>
<tr>
<td>CCS/ED F611</td>
<td>Culture, Cognition and Knowledge Acquisition</td>
</tr>
<tr>
<td>CCS F612</td>
<td>Traditional Ecological Knowledge</td>
</tr>
<tr>
<td>ED/LING F621</td>
<td>Cultural Aspects of Language Acquisition</td>
</tr>
<tr>
<td>ED F616</td>
<td>Education and Socioeconomic Change</td>
</tr>
<tr>
<td>ED F620</td>
<td>Language, Literacy and Learning</td>
</tr>
<tr>
<td>ED F660</td>
<td>Educational Administration in Cultural Perspective</td>
</tr>
<tr>
<td>RD F600</td>
<td>Circumpolar Indigenous Leadership Symposium</td>
</tr>
<tr>
<td>RD F601</td>
<td>Political Economy of the Circumpolar North</td>
</tr>
<tr>
<td>RD F651</td>
<td>Management Strategies for Rural Development</td>
</tr>
<tr>
<td>RD F652</td>
<td>Indigenous Organization Management</td>
</tr>
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</table>

Research Courses
Select two from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ANTH F424</td>
<td>Analytical Techniques</td>
</tr>
<tr>
<td>ANTH F637</td>
<td>Methods in Ethnohistorical Research</td>
</tr>
<tr>
<td>CCS F604</td>
<td>Documenting Indigenous Knowledge</td>
</tr>
<tr>
<td>CCS/ED F603</td>
<td>Field Study Research Methods</td>
</tr>
<tr>
<td>RD F650</td>
<td>Community-Based Research Methods</td>
</tr>
</tbody>
</table>

Select four specialty elective courses 12

Doctoral Dissertation

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL/CCS/ED/RD F699</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

Total Credits

Completion of 18 distance credits will constitute residency.

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
www.uaf.edu/gradsch/classes/interdisciplinary-program/ (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 www.uaf.edu/gradsch/classes/interdisciplinary-program/ (http://www.uaf.edu/gradsch/classes/interdisciplinary-program).

Degrees

• M.A. or M.S., Interdisciplinary Studies (p. 290)
• Ph.D., Interdisciplinary Studies (p. 290)

M.A. or M.S., Interdisciplinary Studies

• Complete the admission process including the following:
  a. Submit GRE scores
  b. 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

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)
Pass a comprehensive examination.

Ph.D., Interdisciplinary Studies

• Complete the admission process including the following:
  a. Submit GRE scores
  b. 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: 18 thesis credits

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248)
Pass a comprehensive examination.

Justice, Administration of

College of Liberal Arts
Justice Program
907-474-5500
www.uaf.edu/justice/ (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 of (p. 290)

M.A., Justice, Administration of

Minimum Requirements for Degree: 30 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)
Complete a minimum of 18 graduate UAF credits.
Receive a passing grade on a written comprehensive exam administered on the UAF campus in conjunction with attendance in JUST F690.
Receive a passing grade on an oral defense examination of a thesis or project.
Complete a thesis or project.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST F605</td>
<td>Administration and Management of Criminal Justice Organizations</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>JUST F698/F699</td>
<td>Non-Thesis Research/Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST F610</td>
<td>Ethics in Criminal Justice Management</td>
<td></td>
</tr>
<tr>
<td>JUST F630</td>
<td>Media Relations and Public Relations</td>
<td></td>
</tr>
<tr>
<td>JUST F650</td>
<td>Analysis Techniques for the Criminal Justice Administrator</td>
<td></td>
</tr>
<tr>
<td>JUST F670</td>
<td>Seminar in the Administration of Juvenile Justice</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 30

Linguistics, Applied

College of Liberal Arts
Linguistics Program
907-474-6585
www.uaf.edu/linguist/ (http://www.uaf.edu/linguist)
M.A. Degree

Minimum Requirements for Degree: 30 credits

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.

Degree

- M.A., Linguistics, Applied (p. 291)

M.A., Linguistics, Applied

Minimum requirements for degree: 30 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</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 or LING F699 Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Concentrations
Select one from the following: 18

- Language Documentation
- Second Language Acquisition Teacher Education

Total Credits 30

Concentrations

GENERAL

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING F602</td>
<td>Second Language Acquisition</td>
<td>3</td>
</tr>
</tbody>
</table>

LANGUAGE DOCUMENTATION

<table>
<thead>
<tr>
<th>Course</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 F627</td>
<td>Introduction to Linguistic Description and Documentation</td>
<td>3</td>
</tr>
<tr>
<td>LING F631</td>
<td>Field Methods in Descriptive Linguistics I</td>
<td>3</td>
</tr>
<tr>
<td>LING F634</td>
<td>Field Methods in Descriptive Linguistics II</td>
<td>3</td>
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<tr>
<td>LING F650</td>
<td>Language Policy and Planning</td>
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</table>

Total Credits 18

SECOND LANGUAGE ACQUISITION TEACHER EDUCATION

<table>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<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>9</td>
</tr>
<tr>
<td>LING F612</td>
<td>Assessment for the Second Language Classroom</td>
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</tr>
<tr>
<td>LING F650</td>
<td>Language Policy and Planning</td>
<td></td>
</tr>
<tr>
<td>LING F660</td>
<td>Internship</td>
<td></td>
</tr>
</tbody>
</table>

Select one elective approved by graduate committee. 3

Total Credits 18

Marine Biology

School of Fisheries and Ocean Sciences
Graduate Program in Marine Sciences and Limnology
907-474-7289
www.sfos.uaf.edu/academics/ (http://www.sfos.uaf.edu/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, School 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. 292)
• Ph.D., Marine Biology (p. 292)

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.

General University Requirements

Complete the general university requirements. (p. 244)

Master's Degree Requirements

Complete the master's degree requirements. (p. 247)

Complete a thesis.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<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>
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<tr>
<td>MSL F692</td>
<td>Seminar</td>
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</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:

a. 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.

General University Requirements

Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements

Complete the Ph.D. degree requirements. (p. 248)

Complete course work at least equivalent to that required for the M.S. degree.

Mathematics

College of Natural Science and Mathematics
Department of Mathematics and Statistics
907-474-7332
www.uaf.edu/dms/ (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. 304) (see separate listings).

Degrees
- M.S., Mathematics (p. 293)
- Ph.D., Mathematics (p. 293)

M.S., Mathematics
- Complete the following admission requirements:
  a. Submit three letters of recommendation addressing the applicant’s educational background, mathematical ability, and research and teaching potential.
  b. Submit undergraduate transcripts.
  c. 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

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Core Courses
- MATH F631 Algebra I 4
- MATH F641 Real Analysis 4
- MATH F645 Complex Analysis 4
- MATH F651 Topology 4

Complete a project or thesis.

Total Credits 16

Ph.D., Mathematics
- Complete the following admission requirements:
  1. Submit three letters of recommendation addressing the applicant’s educational background, mathematical ability, and research and teaching potential.
  2. Submit undergraduate and, if applicable, graduate transcripts.
  3. 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, we strongly recommend the submission of GRE mathematics subject test scores as part of the application for all students.

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.

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248)

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-disciplinary 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. 293)

M.S., Mechanical Engineering
- Complete the following admission requirement:
  a. Submit GRE scores.

Minimum Requirements for Degree: 30 credits
Mining Engineering

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
</tr>
<tr>
<td>ME F642</td>
<td>Advanced Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME F608</td>
<td>Advanced Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

Options
Complete the requirements for one of the following options: 15

- Thesis option
- Non-thesis option

Total Credits 30

THESIS OPTION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credits 15

- ME or other engineering, science, or mathematics courses approved by the student's advisory committee.

NON-THESIS OPTION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME F698</td>
<td>Non-Thesis Research/Project</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
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<td>12</td>
</tr>
</tbody>
</table>

Total Credits 15

- ME or other engineering, science, or mathematics courses approved by the student's advisory committee.

See Engineering (p. 280) 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. 294)

M.S., Mining Engineering

Thesis Option

Minimum Requirements for Degree: 30 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN F688</td>
<td>Graduate Seminar I</td>
<td>1</td>
</tr>
<tr>
<td>MIN F600-level courses</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Technical electives</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>MIN F699</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 30

Non-Thesis Option

Minimum Requirements for Degree: 36 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Program Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN F688</td>
<td>Graduate Seminar I</td>
<td>1</td>
</tr>
<tr>
<td>MIN courses</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Technical electives</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>MIN F698</td>
<td>Non-Thesis Research/Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 36

Natural Resources Management

School of Natural Resources and Extension
907-474-7083
www.uaf.edu/snre/ (http://www.uaf.edu/snre)

M.S., M.N.R.M. Degrees

Minimum Requirements for Degrees: M.S.: 30 credits; M.N.R.M.: 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 and the Registrar.

The M.S. degree in natural resource management 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 management is directed toward resource problems and based on hypothesis testing.

The master’s degree in natural resource management 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 (an “opus”) and an oral presentation demonstrating sound scholarship will be required. Final acceptance of the project will be by the student’s committee and the associate dean of SNRE.

**Degrees**

- M.S., Natural Resources Management (p. 295)
- M.N.R.M., Natural Resources Management (p. 295)

**M.N.R.M., Natural Resources Management**

Minimum Requirements for Degree: 35 credits

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master’s Degree Requirements**
Complete the master’s degree requirements. (p. 247)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NRM F601</td>
<td>Research Methods in Natural Resources Management (or an approved research methods course)</td>
<td>2</td>
</tr>
<tr>
<td>NRM F667</td>
<td>Resilience Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>NRM F668</td>
<td>Resilience Seminar II</td>
<td>6-12</td>
</tr>
<tr>
<td>NRM F692</td>
<td>Graduate Seminar</td>
<td>6</td>
</tr>
<tr>
<td>NRM F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
</tbody>
</table>

Total Credits: 14-20

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. Up to 6 of these credits may be F400-level courses.

**Natural Resources Management**

Minimum Requirements for Degree: 30 credits

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master’s Degree Requirements**
Complete the master’s degree requirements. (p. 247)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM F601</td>
<td>Research Methods in Natural Resources Management (or an approved research methods course)</td>
<td>2</td>
</tr>
<tr>
<td>NRM F667</td>
<td>Resilience Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>NRM F668</td>
<td>Resilience Seminar II</td>
<td>6</td>
</tr>
<tr>
<td>NRM F692</td>
<td>Graduate Seminar</td>
<td>6</td>
</tr>
<tr>
<td>NRM F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
<tr>
<td>Statistics course at the F400 level or above</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 14-20

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. Up to 6 of these credits may be F400-level courses.
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. 296)

Ph.D., Natural Resources and Sustainability

Minimum Requirements for Degree: 26 credits (18 thesis credits)

General University Requirements

Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements

Complete the Ph.D. degree requirements. (p. 248)
Complete course work in thematic area(s) as determined by the advisory committee.

Required and Elective Elements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>NRM F647</td>
<td>Global to Local Sustainability</td>
<td>3</td>
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<tr>
<td>NRM F649</td>
<td>Integrated Assessment and Adaptive</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>NRM F692</td>
<td>Graduate Seminar (Complete two</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>semesters)</td>
<td></td>
</tr>
</tbody>
</table>

Outreach activity of one annual public presentation
Written and oral comprehensive exams
Dissertation defense seminar
Dissertation defense examination

Doctoral dissertation

<table>
<thead>
<tr>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

1. Advancement 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

School of Fisheries and Ocean Sciences
Graduate Program in Marine Sciences and Limnology
907-474-7289
www.sfos.uaf.edu/academics/ (http://www.sfos.uaf.edu/academics)

M.S., Ph.D. Degrees

Minimum Requirements for Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

This program offers M.S. degrees in several concentration areas of oceanography: physical, chemical, biological, geological and fisheries. Limnological research projects are also undertaken under the oceanography degree. The Ph.D. degree is offered in oceanography.

Opportunities for laboratory and field work are available through the School of Fisheries and Ocean Sciences, including the Institute of Marine Science. These include laboratories in Fairbanks, the Seward Marine Center, Kasitsna Bay, the Juneau Center and the Kodiak Seafood and Marine Science Center. Research vessels operated by the institute and school include the R/V Little Dipper, which operates on day trips in Resurrection Bay. Laboratory facilities include a seawater system at Seward and a variety of modern and analytical instrumentation, including stable isotope mass spectrometers, a gamma spectrometer, a flow cytometer facility, and gas and liquid chromatography equipment. Mainframe and personal computing facilities are readily accessible to graduate students.

Oceanography is both interdisciplinary and multidisciplinary. For both M.S. and Ph.D. oceanography students, research emphasis is on processes influencing the ocean’s 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.

Degrees

- M.S., Oceanography (p. 296)
- Ph.D., Oceanography (p. 297)

M.S., Oceanography

- Complete the following admission requirement:
  a. Submit GRE scores.

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.

General University Requirements
Complete the general university requirements. (p. 244)

Master's Degree Requirements
Complete the master's degree requirements. (p. 247)

Concentrations
Select one from the following concentrations:

- Biological, Chemical, Fisheries, Physical
- Geological

Note: Oceanography majors must demonstrate field experience aboard an oceanographic vessel.

Concentrations

BIOLOGICAL, CHEMICAL, GEOLOGICAL, PHYSICAL

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSL F620</td>
<td>Physical Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>MSL F630</td>
<td>Geological Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>MSL F650</td>
<td>Biological Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>MSL F660</td>
<td>Chemical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>MSL F692</td>
<td>Seminar</td>
<td>3</td>
</tr>
<tr>
<td>MSL F699</td>
<td>Thesis</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>Open</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives are open and appropriate to area of concentration.

FISHERIES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSL F620</td>
<td>Physical Oceanography</td>
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</tr>
<tr>
<td>MSL F630</td>
<td>Geological Oceanography</td>
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</tr>
<tr>
<td>MSL F640</td>
<td>Fisheries Oceanography</td>
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</tr>
<tr>
<td>MSL F650</td>
<td>Biological Oceanography</td>
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<td>MSL F660</td>
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<tr>
<td>MSL F699</td>
<td>Thesis</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>Open</td>
<td>3</td>
</tr>
</tbody>
</table>

Ph.D., Oceanography

- Complete the following admission requirement:
  a. Submit GRE scores.

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.

Minimum Requirements for Degree: 18 credits

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248)

- Complete course work equivalent to M.S. degree. ¹

¹ There are no fixed course requirements, nor is an M.S. degree required to earn the Ph.D. degree. However, a candidate for the Ph.D. degree in oceanography (biological, chemical, fisheries, geological, and physical oceanography) will be expected to have completed course work at least equivalent to that required for the corresponding M.S. degree.

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. 280)). Contact the graduate program coordinator or the petroleum engineering department for more information.

Degree

- M.S., Petroleum Engineering (p. 297)

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

### General University Requirements
Complete the general university requirements. (p. 244)

### Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

### Program Requirements
Select four from the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PETE F607</td>
<td>Advanced Production Engineering</td>
</tr>
<tr>
<td>PETE F608</td>
<td>Flow Assurance in the Petroleum Industry</td>
</tr>
<tr>
<td>PETE F610</td>
<td>Advanced Reservoir Engineering</td>
</tr>
<tr>
<td>PETE F621</td>
<td>Applied Reservoir Characterization</td>
</tr>
<tr>
<td>PETE F630</td>
<td>Water Flooding</td>
</tr>
<tr>
<td>PETE F645</td>
<td>Petroleum Geology</td>
</tr>
<tr>
<td>PETE F656</td>
<td>Advanced Petroleum Economic Analysis</td>
</tr>
<tr>
<td>PETE F661</td>
<td>Applied Well Testing</td>
</tr>
<tr>
<td>PETE F662</td>
<td>Enhanced Oil Recovery</td>
</tr>
<tr>
<td>PETE F663</td>
<td>Applied Reservoir Simulation</td>
</tr>
<tr>
<td>PETE F665</td>
<td>Advanced Phase Behavior</td>
</tr>
<tr>
<td>PETE F666</td>
<td>Drilling Optimization</td>
</tr>
<tr>
<td>PETE F670</td>
<td>Fluid Flow Through Porous Media</td>
</tr>
<tr>
<td>PETE F680</td>
<td>Horizontal Well Technology</td>
</tr>
<tr>
<td>PETE F683</td>
<td>Natural Gas Processing and Engineering</td>
</tr>
<tr>
<td>PETE F685</td>
<td>Non-Newtonian Fluid Mechanics</td>
</tr>
<tr>
<td>PETE F689</td>
<td>Multiphase Fluid Flow in Pipes</td>
</tr>
</tbody>
</table>

### Options
Complete the requirements for one of the following options: 18-24

<table>
<thead>
<tr>
<th>Thesis Option</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
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<tr>
<td>Elective courses</td>
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<table>
<thead>
<tr>
<th>Non-Thesis Option</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Thesis Research/Project</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
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</tbody>
</table>

Total Credits 30-36

### Options

#### THESIS OPTION
Minimum Requirements for Degree: 30 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PETE F699</td>
<td>Thesis</td>
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</tr>
<tr>
<td>Elective courses</td>
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Total Credits 18

1 Electives are chosen with approval of graduate advisory committee.

#### NON-THESIS OPTION
Minimum Requirements for Degree: 36 credits

<table>
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<td>6</td>
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<tr>
<td>Electives</td>
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</table>

Total Credits 24

2 Electives are chosen with approval of graduate advisory committee.

---

### Physics

College of Natural Science and Mathematics  
Department of Physics  
907-474-7339  
www.uaf.edu/physics/ (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. 298)
- M.S., Physics with Computational Physics Concentration (p. 299)
- M.S., Physics with Space Physics Concentration (p. 299)

#### Ph.D. Degree
- Ph.D., Physics (p. 299)

#### M.S., Physics
Minimum Requirements for Degree: 30-33 credits

### General University Requirements
Complete the general university requirements. (p. 244)

### Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Select four from the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>PHYS F611</td>
<td>Mathematical Physics</td>
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<tr>
<td>PHYS F612</td>
<td>Mathematical Physics</td>
</tr>
<tr>
<td>PHYS F621</td>
<td>Classical Mechanics</td>
</tr>
<tr>
<td>PHYS F622</td>
<td>Statistical Mechanics</td>
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</table>
PHYS F631 Electromagnetic Theory
PHYS F632 Electromagnetic Theory
PHYS F651 Quantum Mechanics
PHYS F652 Quantum Mechanics

**Thesis or Non-Thesis Requirements**
Select the thesis or non-thesis option 18-24
Total Credits 30-36

**THESIS OPTION**
Minimum Requirements for Degree: 30 credits

**Thesis Requirements**
<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>PHYS F699</td>
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<tr>
<td>Select 12 credits from the following:</td>
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<tr>
<td>Approved PHYS F600-level courses</td>
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<tr>
<td>Approved ATM F600-level courses</td>
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<td>Total Credits</td>
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**NON-THESIS OPTION**
Minimum Requirements for Degree: 33 credits

**Non-Thesis Requirements**
<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS F698</td>
<td>Non-Thesis Research/Project</td>
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<tr>
<td>Select 18 credits from approved courses</td>
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<tr>
<td>Total Credits</td>
<td>21-24</td>
<td></td>
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</tbody>
</table>

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

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master’s Degree Requirements**
Complete the master’s degree requirements. (p. 247)

**Program Requirements**
<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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<tbody>
<tr>
<td>PHYS F611</td>
<td>Mathematical Physics</td>
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</tr>
<tr>
<td>PHYS F612</td>
<td>Mathematical Physics</td>
<td>3</td>
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<tr>
<td>PHYS F629</td>
<td>Methods of Numerical Simulation in Fluids and Plasma</td>
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<tr>
<td>Select at least 3 credits from the following:</td>
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<tr>
<td>Approved MATH F600-level courses (excluding MATH F611/PHYS F611 and PHYS F612)</td>
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<tr>
<td>Approved CS F600-level courses</td>
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<tr>
<td>Select 6 credits of approved PHYS F600-level courses</td>
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<tr>
<td>Total Credits</td>
<td>18-24</td>
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</table>

**Thesis or Non-Thesis Requirements**
Select the thesis or non-thesis option 18-24
Total Credits 30-36

**THESIS OPTION**
Minimum Requirements for Degree: 30 credits

**Thesis Requirements**
<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>PHYS F699</td>
<td>Thesis</td>
<td>6-12</td>
</tr>
<tr>
<td>Select 12 credits from the approved PHYS F600-level courses</td>
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<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>18-24</td>
<td></td>
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</tbody>
</table>

**NON-THESIS OPTION**
Minimum Requirements for Degree: 33 credits

**Non-Thesis Requirements**
<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS F698</td>
<td>Non-Thesis Research/Project</td>
<td>3-6</td>
</tr>
<tr>
<td>Select 18 hours from approved PHYS F600-level courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>21-24</td>
<td></td>
</tr>
</tbody>
</table>

1 At least 30 credits must be regular course work.

**Ph.D., Physics**
Minimum Requirements for Degree: 18 credits
General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248) ¹

Examinations
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.

Physics, Space
College of Natural Science and Mathematics
Department of Physics
907-474-7339
www.uaf.edu/physics/ (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. 298)

Degree
• Ph.D., Physics, Space (p. 300)

Ph.D., Physics, Space
Minimum Requirements for Degree: 18 thesis credits

General University Requirements
Complete the general university requirements. (p. 244)

Ph.D. Degree Requirements
Complete the Ph.D. degree requirements. (p. 248) ¹

Examinations
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.

Psychology, Clinical-Community
College of Liberal Arts
Department of Psychology
907-474-7012
uaf-psyphd@alaska.edu
http://psyphd.alaska.edu

Ph.D. Degree
Minimum Requirements for Degree: 115 credits

The Ph.D. program in clinical-community psychology is accredited by the American Psychological Association as a clinical psychology program.

The Ph.D. program in clinical-community psychology with a rural, indigenous emphasis is a program jointly delivered and administered by the Departments of Psychology at the University of Alaska Fairbanks and the University of Alaska Anchorage. The degree is awarded jointly by UAF and UAA. All program courses are co-taught across campuses via video conference and all program components are delivered by faculty at both campuses. The student experience is equivalent regardless of the students’ city of residence (Fairbanks or Anchorage). The program focus includes clinical, community and cultural psychology with a focus on rural, indigenous issues, and an applied emphasis on the integration of research and practice. As a UAF-UAA partnership, the program integrates the strengths and resources of both campuses to advance academic excellence, promote innovative and practical research, and provide solid graduate training in clinical-community psychology. The program ensures that graduates have obtained the full range of clinical training mandated for doctoral-level clinical psychologists and will be adequately prepared for licensure as psychologists.

The clinical-community psychology program objectives are:

1. To prepare culturally competent scientists.
   Program graduates will demonstrate culturally grounded knowledge and skills in scientific inquiry. Graduates will also demonstrate competency in using research and evaluation skills to disseminates new knowledge and inform clinical and community practice.

2. To prepare culturally competent practitioners.
   Program graduates will demonstrate culturally grounded knowledge and skills in rural clinical-community practice. Graduates will demonstrate competence in developing and implementing culturally relevant prevention and intervention efforts and programs.

3. To prepare culturally competent policy and social change facilitators.
   Graduates will demonstrate culturally grounded knowledge and skills relevant to social and healthcare solutions and possess the competency to facilitate policy and social change.

Degree
• Ph.D., Psychology, Clinical-Community (p. 300)

Ph.D., Psychology, Clinical-Community

Applying for Admission
Students apply to the joint Ph.D. program through the UAA Office of Admissions. All applicant materials are collected and evaluated by the joint UAF-UAA Ph.D. admissions committee, which makes admissions recommendations to the dean of the UAF or UAA Graduate School, depending on the selected applicant’s campus of residence. Applicants may specify a preference for either campus as a location for their studies. For more information about the application process, visit the program website.
**Admission Requirements**

1. Application deadline: Received by Jan. 15 for the following fall admission. This is the only opportunity for program admission each year.
2. Compliance with the university requirements for a doctoral degree and admission to graduate studies as detailed in the UAF and UAA catalogs.
3. Minimum of a bachelor's degree (B.S. or B.A. or B.Ed.); major in psychology or related field preferred. All requirements for bachelor's degree must be completed by June 30 prior to matriculation.
4. Minimum undergraduate grade point average of 3.0.
5. Minimum 3.0 grade point average in major and in all psychology courses.
6. Course work in the areas of abnormal psychology, statistics, research methods and one of the following: personality, clinical psychology, social psychology or community psychology. All prerequisite course work must be completed by June 30 prior to matriculation.
7. Letter of intent describing the applicant’s interest and purpose in studying clinical-community psychology, the reasons why a Ph.D. in clinical-community psychology at UAF/UAA is sought at this point in the applicant’s professional development, and demonstrating an understanding of relevant professional ethics.
8. Professional vita, including documentation regarding academic, research and professional experiences, special projects and activities, and recognitions or honors.
9. Three professional references (preferably curriculum or research advisors, major course instructors with whom the student had contact in more than one course, and/or supervisors). Reference rating forms are at http://psyphd.alaska.edu/admissions.htm.
10. A disclosure statement, located at http://psyphd.alaska.edu/forms/annualdisclosure.pdf, must accompany the application to the program. Lifetime criminal background check must be submitted by students invited to a personal interview at least two weeks prior to the interview. Additional information on the FBI criminal background check is located at http://psyphd.alaska.edu/admissions.htm.

Minimum Requirements for Degree: 115 credits

<table>
<thead>
<tr>
<th>General University Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete the general university requirements. (p. 244)</td>
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</table>

<table>
<thead>
<tr>
<th>Program Requirements</th>
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</thead>
<tbody>
<tr>
<td>Cultural experience</td>
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<table>
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<tr>
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<tr>
<td>PSY F602</td>
<td>Native Ways of Knowing</td>
<td>3</td>
</tr>
<tr>
<td>PSY F603</td>
<td>Alaska and Rural Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY F604</td>
<td>Biological and Pharmacological Bases of Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSY F605</td>
<td>History and Systems of Psychology</td>
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<td>PSY F607</td>
<td>Cognition, Affect and Culture</td>
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</tr>
<tr>
<td>PSY F611</td>
<td>Ethics and Professional Practice</td>
<td>3</td>
</tr>
<tr>
<td>PSY F612</td>
<td>Human Development in a Cultural Context</td>
<td>3</td>
</tr>
<tr>
<td>PSY F616</td>
<td>Program Evaluation and Community Consultation I</td>
<td>3</td>
</tr>
<tr>
<td>PSY F617</td>
<td>Program Evaluation and Community Consultation II</td>
<td>3</td>
</tr>
<tr>
<td>PSY F622</td>
<td>Multicultural Psychopathology</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Students must complete 26 required courses (for a total of 70 credits), 18 credits of dissertation, 18 credits of predoctoral internship and 9 credits of electives. Students must accumulate a minimum of 115 credits to graduate and must have completed all required course work. Students entering the program with a masters degree in psychology or related field must complete at least two years of full-time course work, 18 credits of dissertation, and one year of predoctoral internship, all approved by the student's advisory committee.

2 During their first year in the Ph.D. program, students must participate in a cultural experience as defined by program faculty. The actual experience varies from year to year, but includes direct exposure to Alaska Native and other cultural world views, values and life experiences through contact with cultural elders and advisors. The goal of the cultural experience is to provide an opportunity to interact directly with cultures in a non-classroom setting.

<table>
<thead>
<tr>
<th>Electives</th>
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</thead>
<tbody>
<tr>
<td>9</td>
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Total Credits: 115

**Additional Requirements**

1. Clinical Competency: Clinical competency is demonstrated through preparation of a clinical portfolio that will be evaluated by an ad hoc committee. Criteria for the portfolio will be clearly defined and samples will be provided for students. Students must demonstrate clinical competency before applying to advance to the predoctoral internship and must pass both the clinical competency and community competency before starting the predoctoral internship.

2. Community competency: Community competency is demonstrated through preparation of a community portfolio that will be evaluated by an ad hoc committee. Criteria for the portfolio will be clearly defined and samples will be provided for students. Students must
pass both the clinical competency and the community competency before actually starting a predoctoral internship.

3. Research Competency: Research competency is demonstrated through preparation of a research portfolio that will be evaluated by an ad hoc committee. Criteria for the portfolio will be clearly defined and samples will be provided for students.

4. Advancement to Candidacy: Before students are allowed to register for dissertation credits, they will be reviewed for performance by the joint UAF/UAA Ph.D. committee, using existing university standards and forms for advancement to candidacy. Review will be based on faculty experience with students to date, submitted paperwork and student’s progress through the program. Feedback from the review will be provided to the student by her or his advisor. To advance to candidacy, students must also have received at least a conditional pass on their comprehensive exams. The program defines the comprehensive exam as being met through passing the required competency portfolios. Passing one portfolio qualifies the student for a conditional pass on the comprehensive exam, which is sufficient for the advancement to candidacy. All portfolios must be passed for the comprehensive exam to be fully passed.

5. Doctoral Dissertation Proposal Defense: Before commencing data collection for a dissertation project, students must defend their proposal to their dissertation committee. The defense must be based on a written dissertation proposal to be distributed to the dissertation committee after approval by the dissertation chair. The defense will be an oral presentation to the committee by the student and will not be a public meeting. For data-collection-based dissertations, the proposal must also be approved by the UAF or UAA Institutional Review Board before data collection can commence.

6. Doctoral Dissertation: A doctoral dissertation must be carried out successfully and approved by a doctoral dissertation committee. The dissertation committee will consist of at least four members. It is recommended that the dissertation chair be on the same campus as the student. There must be at least one committee member from each psychology department at UAF and UAA. Content areas can vary widely, but must be related to clinical, community, or cross-cultural issues and applicable in Alaska settings.

7. Advancement to Internship: Students must pass the clinical portfolio and at least conditionally pass their dissertation proposal defense before applying to advance to predoctoral internship. In addition to passing the clinical portfolio and conditionally passing the dissertation proposal defense, students must apply with a formal memorandum to the local program director by Sept. 30 (the fall semester prior to the year during which the student seeks to complete the internship), stating their intent to advance to internship. For most students this will mean that the application needs to be made in the fall of the fourth year in the program. The program director will notify the core faculty committee, who will review the students’ coursework, assure that adequate progress has been made toward all prior milestones (i.e., clinical competency, community competency, research competency, doctoral dissertation, proposal defense and advancement to candidacy) before approving students for internship and before writing a letter of support for them. Students must fully pass the clinical portfolio, community portfolio and dissertation proposal defense before starting the internship. Failure to pass the clinical portfolio, community portfolio and the dissertation proposal defense will result in students being ineligible to apply for or enroll in internship credits.

8. Predoctoral Internship (PSY F686): A full-time, one-year predoctoral internship is required. This internship should meet the criteria laid out by the American Psychological Association; selection of an approved internship is encouraged. Placements in Alaska are preferred but not required.

9. APA Ethical Guidelines: Strict compliance with APA ethical guidelines is required throughout participation in the degree program. Violations can result in immediate dismissal from the program and failure to graduate. Completion of an annual disclosure statement is also required. Affirmative answers may result in dismissal from the program and failure to graduate. The disclosure statement may be viewed at http://psyphd.alaska.edu.

Rural Development

College of Rural and Community Development
Department of Alaska Native Studies and Rural Development
Fairbanks Campus 907-474-6528/888-574-6528 toll-free
Anchorage office 907-279-2700/800-770-9531 toll-free
Bristol Bay Campus 907-842-8316
Chukchi Campus 907-442-3400
Interior Alaska Campus 907-474-5439
Kuskokwim Campus 907-543-4500
Northwest Campus 907-443-2201
www.uaf.edu/danrd/ma-program/ (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 800-770-9531 or visit www.uaf.edu/danrd/ma-program/ (http://www.uaf.edu/danrd/ma-program).

Degree

- M.A., Rural Development (p. 302)

M.A., Rural Development

Minimum Requirements for Degree: 30 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Program Requirements
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RD F600</td>
<td>Circumpolar Indigenous Leadership Symposium</td>
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<tr>
<td>RD F601</td>
<td>Political Economy of the Circumpolar North</td>
<td>3</td>
</tr>
<tr>
<td>RD F625</td>
<td>Community Development Strategies: Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>RD F650</td>
<td>Community-Based Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>RD F651</td>
<td>Management Strategies for Rural Development</td>
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<td>Select 9-12 elective credits at the F600 level of the following:</td>
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<tr>
<td>ANTH F610</td>
<td>Northern Indigenous Peoples and Contemporary Issues</td>
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<tr>
<td>CCS F608</td>
<td>Indigenous Knowledge Systems</td>
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<tr>
<td>RD F425</td>
<td>Cultural Resource Issues</td>
<td></td>
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<tr>
<td>RD F652</td>
<td>Indigenous Organization Management</td>
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<tr>
<td>RD F655</td>
<td>Circumpolar Health Issues</td>
<td></td>
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<tr>
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<td>Select one of the following:</td>
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</tr>
<tr>
<td>STO F601</td>
<td>Communicating Science</td>
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<tr>
<td>STO F602</td>
<td>Mentoring in the Sciences</td>
<td>2</td>
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<tr>
<td>STO F603</td>
<td>Instructional Design</td>
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</tr>
<tr>
<td>STO F604</td>
<td>Science Teaching and Outreach Internship</td>
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<tr>
<td>STO F666</td>
<td>Scientific Teaching</td>
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<tr>
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<td>Select one of the following:</td>
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<td>MATH F600</td>
<td>Teaching Seminar</td>
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<tr>
<td>PHYS F605</td>
<td>Physics Teaching Seminar/Practicum</td>
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<tr>
<td>STO F692</td>
<td>Current Topics in Scientific Teaching</td>
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<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

1. Up to 6 credits may be at the F400 level with approval from the graduate committee.

### 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/](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 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. 303)

**M.S.D.M, Security and Disaster Management**

- Complete the following admissions requirements:
Minimum Requirements for Degree: 30 credits

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master's Degree Requirements**
Complete the master's degree requirements. (p. 247)

**Program Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F601</td>
<td>Legal Aspects of Homeland Security and Emergency Management</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>
</tr>
<tr>
<td>HSEM F609</td>
<td>Human Security</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F632</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F665</td>
<td>Strategic Collaboration</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F690</td>
<td>Security and Disaster Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSEM F613</td>
<td>International Disaster Management</td>
<td>3</td>
</tr>
<tr>
<td>HSEM F692</td>
<td>Security and Disaster Management Seminar</td>
<td>3</td>
</tr>
<tr>
<td>Any F400-level HSEM course not taken as an undergraduate</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 30

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.

---

### Statistics

**Special Education**

School of Education  
907-474-7341  
[www.uaf.edu/educ](http://www.uaf.edu/educ)

Students may earn a graduate-level, postbaccalaureate certificate and Master of Education degree in special education. See Education (p. 265) for information.

**Statistics**

College of Natural Science and Mathematics  
Department of Mathematics and Statistics  
907-474-7332  
[www.uaf.edu/dms](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. 305)

**Graduate Certificate, Statistics**

- Graduate Certificate, Statistics (p. 304)

**Graduate Certificate, Statistics**

- Complete the following admission requirements:
  - a. Hold a baccalaureate degree from an accredited institution
  - b. Complete MATH F251X, MATH F252X and MATH F253X or equivalent
  - c. Complete STAT F401 or equivalent

1. Students must earn a C grade or better in each course.

Minimum Requirements for Certificate: 12 credits

**General University Requirements**
Complete the general university requirements. (p. 244)

**Graduate Certificate Requirements**
Complete the graduate certificate requirements. (p. 247)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT F651</td>
<td>Statistical Theory I</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following options: 3-6

**Option 1:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT F652</td>
<td>Statistical Theory II</td>
</tr>
<tr>
<td>or STAT F653</td>
<td>Statistical Theory III: Linear Models</td>
</tr>
</tbody>
</table>

**Option 2:**

Select two from the following:
M.S., Statistics

- Complete the following admission requirements:
  a. Submit three letters of recommendation concerning the applicant's educational background and quantitative training.
  b. Submit complete transcripts for all college-level work.
  c. Submit a resume.
  d. Submit a written statement of goals.
  e. Submit GRE scores.
  f. The applicant must have completed a bachelor's degree from an accredited institution with a GPA of at least 3.0.
  g. Must have completed the following courses or their equivalent with a B grade or better: full calculus sequence (MATH F251X, MATH F252X, MATH F253X); or students completing MATH F230X must take MATH F252X and MATH F253X before acceptance; and a course in linear algebra (MATH F314), at least one introductory statistics or probability course (STAT F200X, STAT F300 or MATH F371, MATH F408). Students lacking MATH F314 may be accepted on probation.

Minimum Requirements for Degree: 30 credits

General University Requirements
Complete the general university requirements. (p. 244)

Master’s Degree Requirements
Complete the master’s degree requirements. (p. 247)

Statistics Core Courses

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

Select two of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT F461</td>
<td>Applied Multivariate Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT F602</td>
<td>Experimental Design</td>
<td></td>
</tr>
<tr>
<td>STAT F605</td>
<td>Spatial Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT F621</td>
<td>Distribution-Free Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 26

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 chair has to be a civil and environmental engineering faculty member or an Institute of Northern Engineering research faculty. At least one committee member has to 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. 305)
Minimum Requirements for Degree: 30 credits

**General University Requirements**
Complete the general university requirements. (p. 244)

**Master's Degree Requirements**
Complete the master's degree requirements. (p. 247)

**Program Requirements**
Select one from following concentrations:
- Environmental Contaminants
- Environmental Science and Management
- Hydrology
- Water Supply and Waste Treatment

**Total Credits**: 21-27

### Concentrations

#### ENVIRONMENTAL CONTAMINANTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>

Approved electives (3 credits for thesis; 9 credits for project)  

**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>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE F601</td>
<td>Engineering Research Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Select five from the following:  

- ENVE F641 Aquatic Chemistry  
- ENVE F644 Environmental Management and Permitting  
- ENVE F647 Biotechnology  
- ENVE F649 Hazardous and Toxic Waste Management  
- ENVE F651 Environmental Risk Assessment  
- ENVE F652 Introduction to Toxicology for Engineers and Scientists

Approved electives (3 credits for thesis; 9 credits for project)  

**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.

#### HYDROLOGY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE F601</td>
<td>Engineering Research Communication</td>
<td>3</td>
</tr>
<tr>
<td>CE F662</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>
</tbody>
</table>

#### WATER SUPPLY AND WASTE TREATMENT

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>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>3</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)  

**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.

**Wildlife Biology and Conservation**

College of Natural Science and Mathematics  
Department of Biology and Wildlife  
907-474-7671  
www.bw.uaf.edu (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. 307)**

**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

**General University Requirements**

Complete the general university requirements. (p. 244)

**Master of Science with Thesis Degree Requirements**

Complete the M.S. with Thesis degree requirements. (p. 249)

Select two courses in BIOL or WLF at the graduate level including one of the following:

- BIOL/WLF F602 Research Design
- BIOL/WLF F604 Scientific Writing, Editing, and Revising in the Biological Sciences
- BIOL/WLF F680 Data Analysis in Biology

Complete and pass the departmental written and oral master's comprehensive examination.

Total Credits 6-7

See Biological Sciences (p. 254).
# COURSE DESCRIPTIONS

**How to Read the Course Descriptions** (p. 308)

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, Tok and Unalaska.

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, ENGL 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>000-049</th>
<th>Non-credit courses</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

### Developmental courses

Developmental courses are preparatory courses that do not apply to associate, baccalaureate or graduate degree requirements. Some courses are offered by an interdisciplinary program (such as Women, Gender and Sexuality Studies (p. 207)) with a specific disciplinary content (e.g., History (p. 207)). Some courses containing interdisciplinary content are sponsored by several departments (e.g., FLPA F200X/ART F200X/MUS F200X). These courses are "cross-listed" and are designated in the class listings by "cross-listed with___."

### Lower-division courses

Freshman and sophomore students may be required to obtain special permission to take 300- and 400-level courses unless the courses are required in the first two years of their curriculum as printed in this catalog.

### Upper-division courses

500-level courses are intended as post-baccalaureate experiences for professionals to continue their education at a level distinct from graduate level education. 500-level special topics and independent study courses (593, 595, 597) do not apply toward any degree, certification or credential program. 500-level courses are not interchangeable with 600-level courses for graduate degree programs.

### Post-baccalaureate professional courses

A few well-qualified undergraduates may be admitted to graduate courses with approval of the instructor. Students may not apply such a course to requirements for both a baccalaureate and a graduate degree.

### Stacked and Cross-listed Courses

Some courses are offered by an interdisciplinary program (such as Women, Gender and Sexuality Studies (p. 242)) with a specific disciplinary content (e.g., History (p. 207)). Some courses containing interdisciplinary content are sponsored by several departments (e.g., FLPA F200X/ART F200X/MUS F200X). 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 (ENGL F111X, MATH F113X), meet specific general education requirements. Courses with suffixes W or O meet upper-division writing intensive or oral communication intensive course requirements for the baccalaureate degree.

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; -98, non-thesis research/project, preparing for professional practice; and -99, thesis/dissertation, preparing for scholarly or research activity.

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

One credit represents satisfactory completion of 800 minutes (one hour per week) of lecture, or 1,600 or 2,400 minutes of laboratory (or studio or other similar activity), whichever is appropriate. (It is understood that an average student will be expected to spend 1,600 [two hours per week] minutes of study and preparation outside of class in order to meet the learning objectives for the unit of credit in lecture.)

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 (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.

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.

Identifying Courses

<table>
<thead>
<tr>
<th>Requirements</th>
<th>The General Education</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Courses used to satisfy general education requirements have course numbers ending with the suffix X. For example, ENGL F111X and COMM F141X meet specific general education requirements. See general education requirements for a listing of other specific courses.</td>
<td></td>
</tr>
</tbody>
</table>

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 elective” requirement for a Bachelor of Arts degree. Some courses, including all special topics and individual study courses, are not given
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  
Discussions 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  
Offered Fall or Spring  
Accounting for governmental units, public schools, colleges and universities, health care providers, voluntary health and welfare organizations and other nonprofit organizations.  
**Prerequisites:** ENGL F111X; ENGL F211X or F213X; COMM F131X or 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
## Accounting and Information Systems (AIS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT F452</td>
<td>Auditing (W)</td>
<td>3</td>
<td>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.</td>
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<td></td>
<td><strong>Prerequisites:</strong> ACCT F362; AIS F316; ENGL F111X or ENGL F211X or ENGL F213X.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>ACCT F471</td>
<td>Tax Planning &amp; Research</td>
<td>3</td>
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<tr>
<td>ACCT F472</td>
<td>Internal and Government Auditing (W)</td>
<td>3</td>
<td>Offered Fall or Spring 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.</td>
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<tr>
<td></td>
<td><strong>Prerequisites:</strong> ENGL F111X; ENGL F211X or F213X; ACCT F362; or instructor permission.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>ACCT F656</td>
<td>Internship in Accounting</td>
<td>1-3</td>
<td>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.)</td>
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<td><strong>Prerequisites:</strong> M.B.A standing or approval of M.B.A director.</td>
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<td><strong>Lecture + Lab + Other:</strong> 0 + 6-14 + 0</td>
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<tr>
<td>AIS F101</td>
<td>Effective Personal Computer Use</td>
<td>3</td>
<td>Using and understanding advanced computing software applications. Course develops conceptual and practical knowledge of advanced presentation/communications software, database programs and operating systems.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AIS F224</td>
<td>Advanced MS Excel</td>
<td>1</td>
<td>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.</td>
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<td></td>
<td><strong>Prerequisites:</strong> AIS F101 or permission of instructor.</td>
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<td><strong>Lecture + Lab + Other:</strong> 1 + 0 + 0</td>
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<tr>
<td>AIS F225</td>
<td>Windows Networking and Administration</td>
<td>1</td>
<td>Offered As Demand Warrants Network engineering skills required to implement and support the Microsoft Windows OS. Includes installation, configuration, peer-to-peer networking, interoperability with Novell Netware, tuning and troubleshooting.</td>
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<td><strong>Prerequisites:</strong> AIS F101; Experience using the Microsoft Windows OS; or permission of instructor.</td>
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<td><strong>Lecture + Lab + Other:</strong> 1 + 0 + 0</td>
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<tr>
<td>AIS F310</td>
<td>Management of Information Systems</td>
<td>3</td>
<td>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.</td>
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<td><strong>Prerequisites:</strong> AIS F101.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AIS F312</td>
<td>Information Systems Technology (W)</td>
<td>3</td>
<td>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.</td>
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<td><strong>Prerequisites:</strong> ENGL F111X; ENGL F211X or ENGL F213X.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AIS F316</td>
<td>Accounting Information Systems</td>
<td>3</td>
<td>Offered Fall or Spring Accounting systems for business and public entities. Emphasis on internal control functions and design concepts.</td>
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<td><strong>Prerequisites:</strong> AIS F101; ACCT F262.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AIS F310</td>
<td>Systems Analysis and Program Design</td>
<td>3</td>
<td>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.</td>
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<td><strong>Prerequisites:</strong> AIS F310 or AIS F312.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AIS F410</td>
<td>Database Design for Management Information</td>
<td>3</td>
<td>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.</td>
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<td><strong>Prerequisites:</strong> AIS F310 or CS F401.</td>
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<td><strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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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 or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F151 Cleaning and Corrosion Control
1 Credit
Offered As Demand Warrants
Basic aircraft cleaning materials, methods and corrosion control.
Prerequisites: Admission to A & P Program; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F205 Airframe Structures
3 Credits
Offered As Demand Warrants
Prerequisites: Experience requirements of FAR 65.77; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0
AFPM F215  MOS Powerplant Theory/Maintenance
2 Credits
Offered As Demand Warrants
Jet engine fundamentals, analysis and testing. Inspecting turbo
core, turbo shaft and turbo fan engines. Overhaul, inspection and
fundamentals of reciprocating engines. Preparation for the FAA
Mechanics Airframe Structures written, oral and practical exam.
Prerequisites: Experience requirements of FAR 65.77; or permission of
instructor.
Lecture + Lab + Other: 2 + 0 + 0
AFPM F216  MOS Powerplant System/Components
3 Credits
Offered As Demand Warrants
Fuel metering, induction systems, propellers, control systems and
powerplant electricity. Repair, inspection, service and troubleshooting.
Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.
Prerequisites: Experience requirements of FAR 65.77; or permission of
instructor.
Lecture + Lab + Other: 3 + 0 + 0
AFPM F230  Aircraft Electrical Systems
2.6 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; or permission of instructor.
Lecture + Lab + Other: 2.6 + 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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 4.5 + 0 + 0
AFPM F240  Turbine Engines
2 Credits
Offered As Demand Warrants
Development, theory and operation of turbine engines. Engine design,
performance, accessories and subsystems. Engine maintenance and
overhaul.
Prerequisites: Admission to A & P Program; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0
AFPM F246  Fuel Metering Systems
2 Credits
Offered As Demand Warrants
Prerequisites: Admission to the A & P Program; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
Lecture + Lab + Other: 1 + 0 + 0

AFPM F263  Aircraft Finishes  
0.5 Credit 
Offered As Demand Warrants 
Aircraft sheet metal fabrication, inspection and repair, including rivets and fasteners.  
Prerequisites: Admission to A & P Program; or permission of instructor.  
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; or permission of instructor.  
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.  
Prerequisites: Admission to A & P Program; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.
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; or permission of instructor.
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 F100  Orient Ntv/Rural Cllge Study
1 Credit
Lecture + Lab + Other: 1 + 0 + 0

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; or permission of instructor.
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; or permission of instructor.
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
Communication processes in Yup'ik and English speaking cultures. Solutions to identify problem areas in cross-cultural communication. Situations such as conversations, meetings, translating and interpreting. Interpreting meaning in what is communicated between people of different sociocultural backgrounds. 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)  
1-3 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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F251X Introduction to Athabascan 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 F287 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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

ANL F289 Practicum in Native Language Education II  (a)  
3,4 Credits  
Offered As Demand Warrants  
Individualized work experience. Supervised teaching with an experienced teacher overseeing student instructional activities and assisting with the class as needed. Note: Course may be repeated once for credit.  
Prerequisites: ANL F199; ANL F287; ANL F288.  
Lecture + Lab + Other: 3,4 + 0 + 10

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 all 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; or permission of instructor.  
Lecture + Lab + Other: 0.5 + 10 + 10
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 + 10 + 10  

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 F410X 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 underdocumented 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; or permission of instructor.  
**Cross-listed with** CCS F608; ED F608; RD F608.  
Lecture + Lab + Other: 3 + 0 + 0  

ANL F651  Topics in Athabascan Linguistics  
3 Credits  
Offered Fall Odd-numbered Years  
Graduate-level introduction to important topics in Athabascan linguistics, including both foundational literature and current research. Topics may include laryngeal features; tonogenesis; the syntax-morphology interface; argument structure; lexical semantics; and discourse. Course may be repeated once for credit with permission of instructor.  
**Prerequisites:** LING F601 or equivalent; 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 their prior graduate studies and research. Seminar is taken near the term 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 F102P  Orientation to Alaska Native Education  
2 Credits  
A seminar in issues related to Alaska Native and rural education. Through weekly meetings held both on campus and in Fairbanks schools, students examine and discuss issues with Alaska Native educators on topics related specifically to rural and urban Alaska Native education. Issues include: Native ways of knowing, local control, curriculum development for small/multi-graded/rural schools, cultural differences in teaching and learning, and bilingual programs.  
**Prerequisites:** Permission of instructor.  
**Cross-listed with** ED F102.  
Lecture + Lab + Other: 2 + 0 + 0  

ANS F111  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.  
**Cross-listed with** HIST F110.  
Lecture + Lab + Other: 3 + 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, ethnology, 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
Traditional 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 ENGL F111X or higher; or permission of instructor.
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; NORS 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 (Athabascan 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
Understanding and applying traditional designs and technologies of Native art.
Prerequisites: ART F105; or permission of instructor.
Cross-listed with ART F268.
Lecture + Lab + Other: 1 + 4 + 0

ANS F275  Yup'ik Practices in Spirituality and Philosophy  (h, a)
3 Credits
Offered As Demand Warrants
Exploration of the processes in Yup'ik natural religion and the underlying philosophy that is the basis for Yup'ik existence in the spiritual realm. Wholeness of Yup'ik existence as it integrates into Western religion and philosophy.
Lecture + Lab + Other: 3 + 0 + 0

ANS F300  Alaska Native Writers Workshop  (W, h, a)
3 Credits
Rhetorical methods of creative expression of the Alaska Native experience. Emphasis on the student's development of expressive abilities in a variety of Native and Western forms. Publication of student work a possibility.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; and permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANS F310  Indigenous Land Settlements  (s, 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: ANTH F242 or PS F263 or HIST F110; or permission of instructor.
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; or permission of instructor.
Cross-listed with RD F315.
Lecture + Lab + Other: 3 + 0 + 0

ANS F320  Language and Culture in Alaska (W, s, a)  3 Credits
Offered Alternate Spring
Course surveys relationships between language, culture and society with a special focus on the languages and cultures of Alaska. We review the study of linguistic anthropology, consider cultural variation in the socialization to language, multilingualism, language change, language shift, cultural variation in conversational practices, and relationships between language and identity (gender, ethnicity, nationalism).
Prerequisites: LING F101X; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with ANTH F320.
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: HIST F110 or PS F263 or TM F201; or permission of instructor.
Cross-listed with PS F325.
Lecture + Lab + Other: 3 + 0 + 0

ANS F330  Yup’ik Parenting and Child Development (h, a)  1-3 Credits
Offered As Demand Warrants
Processes, methods and evaluation of Yup’ik child rearing including how it is affected by other cultures and how these can be integrated into the process. Only offered at Kuskokwim Campus.
Prerequisites: PSY F240; or permission of instructor.
Lecture + Lab + Other: 1-3 + 0 + 0

ANS F335  Native North Americans (s, a)  3 Credits
Offered As Demand Warrants
Interdisciplinary examination of the ecological, cultural, historical and political experiences of Native Americans. Includes archaeological evidence, ethnographic data and indigenous accounts. Readings selected from all of North America with an emphasis on Alaska Natives.
Prerequisites: ANS F101; ANS F242X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANS F340  Contemporary Native American Literature (h, a)  3 Credits
Offered Fall
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: ENGL F111X; or permission of instructor.
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: ENGL F111X.
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; ENGL F111X; ENGL F211X or ENGL F213X; SOC F100X; or permission of instructor.
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, Eskiimo, Alaskan, Eyak, Tlingit, Haida and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales.
Prerequisites: ENGL F111X; or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
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; or permission of instructor.  
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; or permission of instructor.  
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/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; or permission of instructor.  
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; or permission of instructor.  
Cross-listed with ART F368.  
Lecture + Lab + Other: 1 + 4 + 0  
ANS F375  Native American Religion and Philosophy  (h, a)  
3 Credits  
Offered Spring Even-numbered Years  
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  Alaska Natives in Film  (W, h, a)  
3 Credits  
Offered Spring Odd-numbered Years  
Analysis of the portrayal of Alaska’s Inupiaq and Yup’ik peoples (with some on Canada’s Inuit) through select films and readings. Learning to critically analyze films and understanding how various film techniques are accomplished while focusing on feature films’ treatment and use of Northern peoples in film, as well as looking at the social impact of such films.  
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
Recommended: ART/MUS/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: HIST F110; ANTH F242; upper-division standing.  
Cross-listed with RD F401.  
Lecture + Lab + Other: 3 + 0 + 0  
ANS F420  Alaska Native Education  (s, a)  
3 Credits  
Offered Summer  
School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required. Stacked with ED F606  
Prerequisites: ANTH F242; junior standing; or permission of instructor.  
Cross-listed with ED F420.  
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 F101 or TM F112 or TM F201 or HIST F110; upper-division standing.  
Recommended: PS F263.  
Cross-listed with PS F425.  
Lecture + Lab + Other: 3 + 0 + 0  
ANS F450  Comparative Indigenous Rights and Policies  (s, a)  
3 Credits  
Offered As Demand Warrants  
A case-study approach in assessing aboriginal rights and policies in different nation-state systems. Seven aboriginal situations examined for factors promoting or limiting self-determination.  
Prerequisites: Upper-division standing; or permission of instructor.  
Cross-listed with PS F450.  
Lecture + Lab + Other: 3 + 0 + 0  
ANS F460  Alaska Native Studies (ANS)
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; or permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANS F461  Native Ways of Knowing  (h, a)
3 Credits
Offered Spring
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 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; or permission of instructor.
Cross-listed with ART F468.
Lecture + Lab + Other: 3 + 0 + 0

ANS F472  Rural Alaska, Natives and the Press  (W, h, a)
3 Credits
Offered As Demand Warrants
Analysis of the historical role rural Alaska and Alaska Natives have played in the statewide press, including Native and non-Native journalists/publishers and their impact on Alaska history and the public mind. Analysis of the rural press, portrayal of rural Alaska in the urban press and the role of cultural journalism.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
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: ANTH F242; or permission of instructor.
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; ENGL F211X or ENGL F213X; 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; or permission of instructor.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

ASLG F203  American Sign Language III  (h)
3 Credits
Offered As Demand Warrants
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ASLG F204  American Sign Language IV  (h)
3 Credits
Offered As Demand Warrants
Prerequisites: ASLG F203; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ASLG F220  Deaf Culture
3 Credits
Offered as Demand Warrents
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: ENGL F111X, ASLG F202X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ASLG F230  Deaf History
3 Credits
Offered As Demand Warrents
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: ENGL F111X; ASLG F202X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ASLG F240  ASL Literature
3 Credits
Offered As Demand Warrents
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: ENGL F111X an ASLG F202X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ASLG F260  ASL Lab
1 Credit
Offered As Demand Warrents
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: Concurrent enrollment in or completion of ASLG F202.
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 ENGL F111X or higher or permission of instructor.
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 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.
Prerequisites: ANTH F100X or ANTH F111 or ANTH F211X or permission of instructor.
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 Spring
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 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 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 globalisation and global issues including the deterrioralization 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 F260  Language in Culture and Communication  (s)  
3 Credits  
Offered Fall Odd-numbered Years; As Demand Warrants  
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 interactional sociolinguistics, writing systems and ritual language?Cross-listed with LING F260  
Prerequisites: ANTH F100X; or ANTH F101X; or ANTH F215; or SOC F100X; or LING F101X.  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F302  Siberia: Past, Present, Future  (s, a)  
3 Credits  
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. Spring Even-numbered Years  
Prerequisites: ANTH F100X or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F308  Language and Gender  (0, W, s)  
3 Credits  
Offered Fall Odd-numbered Years  
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.  
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.  
Cross-listed with LING F308; WGS F308.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F309  Circumpolar Archaeology  (s, a)  
3 Credits  
Offered Fall Odd-numbered Years  
Archaeology of the circumpolar world from initial occupations through the historic period. Cultural and chronological variability in human adaptation to high latitudes. Causes and consequences of population movement, environmental change and cultural interaction in the Old and New World, as understood through archaeology.  
Prerequisites: Permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

ANTH F314  The Archaeology of the Cavemen  (W, s)  
3 Credits  
Offered Spring Odd-numbered Years  
Explores the archaeology of the "classic" cave men-the Neanderthals and their contemporaries in Africa. Begins with an exploration of how cave men have been portrayed in popular culture/the arts, but focuses primarily on what the archaeological record can tell us about the behavior and culture of these important human ancestors.  
Prerequisites: ANTH F100X or ANTH F101X; ENGL F111X; ENGL F211X or ENGL F213X.  
Lecture + Lab + Other: 3 + 0 + 0
ANTH F315  Human Variation  (n)
3 Credits
Offered Spring Even-numbered Years
Biology of recent and modern human populations, including systematics, behavior, ecology and inter- and intrapopulation genetic and morphological variations. Human adaptations to heat, cold, high altitudes and changing nutritional and disease patterns. Human skeletal biology, including metrical and non-metrical variation, aging and sexing skeletal remains, and paleopathology.
Prerequisites: ANTH F221 or BIOL F103X.
Lecture + Lab + Other: 2 + 3 + 0

ANTH F317  Human Growth and Development  (n)
3 Credits
Offered As Demand Warrants
Life-span approach to physiological (and cognitive) growth and development in fossil through modern humans. Begins with a summary of human biology and genetics. Proceeds through major phases in life: prenatal, infancy, childhood, adolescence, adult and old age. Includes detailed soft and hard tissue developments in these phases of life.
Prerequisites: ANTH F221.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F320  Language and Culture in Alaska  (W, s, a)
3 Credits
Offered Alternate Spring
Course surveys relationships between language, culture, and society with a special focus on the languages and cultures of Alaska. We review the study of linguistic anthropology, consider cultural variation in the socialization to language, multilingualism, language change, language shift, cultural variation in conversational practices and relationships between language and identity (gender, ethnicity, nationalism).
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; LING F101X; or permission of instructor.
Cross-listed with ANS F320.
Lecture + Lab + Other: 3 + 0 + 0

ANTH 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 or permission of instructor.
Cross-listed with ANS F365; ART F365.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F383  Athabascan Peoples of Alaska and Adjacent Canada  (s)
3 Credits
Offered Fall Even-numbered Years
Contemporary conditions and traditional heritage of the Athabascan populations of Alaska and Canada. Impact of Euroamericans on these populations and cultures.
Prerequisites: ANTH F242 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F384  History of Anthropology  
3 Credits
Offered Fall
Major theoretical approaches in anthropology chronologically from formulation of the discipline to anthropology to current theory. Nature of the discipline, its goals and methods, and the relevance of theoretical perspectives to interpretations in anthropology.
Prerequisites: ANTH F215 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANTH 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 or permission of instructor.
Cross-listed with ART F402.
Stacked with ANTH F602, ART F602.
Lecture + Lab + Other: 3 + 0 + 0

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; COMM F313X or COMM F414X; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
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; ENGL F111X; ENGL F211X; or ENGL F213X.
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 or permission of instructor.
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; or permission of instructor.
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: COMM F131X or COMM F141X, Anthropology major with senior standing, or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F412  Human-Environment Research Methods  
3 Credits  
Offered Fall  
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.  
Prerequisites: COMM F131X or COMM F141X, ENGL F211X or ENGL F213X, upper level standing, or permission of instructor.  
Cross-listed with FISH F412.  
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. ANTH F211X, or permission of instructor.  
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, or permission of instructor.  
Stacked with ANTH F625.  
Lecture + Lab + Other: 3 + 3 + 0  
ANTH F423  Human Origins  
3 Credits  
Offered Spring Odd-numbered Years  
Analysis of the Plio-Pleistocene hominid fossil record, including comparative primate and hominid skeletal and dental anatomy, systematics, taphonomy and long-term biobehavioral adaptations.  
Prerequisites: ANTH F212 or ANTH F221 or permission of instructor.  
Stacked with ANTH F623.  
Lecture + Lab + Other: 2 + 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; or permission of instructor.  
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 or equivalent; 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: ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
ANTH F432  Field Methods in Descriptive Linguistics  (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; or permission of instructor.  
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 contact, 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  (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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X.
Cross-listed with LING F435.
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 relation 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 our cultural variety are presented.
Prerequisites: ANTH F215 or WGS F201X; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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, or permission of instructor.
Cross-listed with GEOS F465.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F470  Oral Sources: Issues in Documentation  (h)
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, or permission of instructor.
Cross-listed with NORS F470.
Stacked with ANTH F670; NORS F670.
Lecture + Lab + Other: 3 + 0 + 0
ANTH F472  Culture and History in the North Atlantic  (s)
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; NORS F672.
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 a cross-cultural perspective. Social context of art production and use, cross-cultural variations in definition of an artist’s role.
Prerequisites: Senior standing or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
Stacked with ANTH F409.
Lecture + Lab + Other: 3 + 0 + 0

ANTH 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 with permission of instructor.
Cross-listed with NORS F610.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F612  Paleoecology
3 Credits
Offered As Demand Warrants
Advanced study of Quaternary environments. The influences of climatic change and the interrelationships of physical and biological factors on the distribution and evolution of biota, including humans, will be discussed.
Prerequisites: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F616  Anthropologic Background for Resilience and Adaptation  (a)
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 or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0
Prerequisites: 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/BIO/ECO/NRM F667, ANTH/BIO/ECO/NRM F668, or permission of instructor.
Cross-listed with BIOL F613; ECON F613; NRM F613.

Lecture + Lab + Other: 2 + 0 + 0

ANTH F623 Human Origins

3 Credits
Offered Spring Odd-numbered Years
Analysis of the Plio-Pleistocene hominid fossil record, including comparative primate and hominin skeletal and dental anatomy, systemsatics, taphonomy and long-term biobehavioral adaptations.

Prerequisites: Graduate standing or permission of instructor.
Stacked with ANTH F423.
Lecture + Lab + Other: 2 + 3 + 0

ANTH F624 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: Graduate standing in Anthropology.
Stacked with ANTH F424.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F625 Human Osteology

4 Credits
Offered Fall Odd-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; or permission of instructor.
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; or permission of instructor.
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. Graduate standing or permission of instructor. 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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F631 Linguistic Anthropology: Language, Thought and Action

3 Credits
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. Offered As Demand Warrants
Cross-listed with LING F640.
Lecture + Lab + Other: 3 + 0 + 0
ANTH F632  Field Methods in Descriptive Linguistics  
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; or permission of instructor.  
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 F434; LING F434.  
Lecture + Lab + Other: 3 + 0 + 0

ANTH F635  Political Media and Discourses of the American Right  
3 Credits  
The 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 are not part of the scope of the class.  
Prerequisites: Graduate standing.  
Cross-listed with LING F635.  
Stacked with ANTH 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 or permission of instructor.  
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 ethnographies 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 women's and men's experiences in their cultural variety are presented.  
Prerequisites: Graduate standing or permission of instructor.  
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 or permission of instructor.  
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 and permission of instructor.  
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; or permission of instructor.  
Recommended: ANTH/BIOL/ECON/NRM F647; ANTH/BIOL/ECON/NRM F648; ANTH/BIOL/ECON/NRM F657.  
Cross-listed with BIOL F649; ECON F649; NRM F649.  
Lecture + Lab + Other: 3 + 0 + 0
ANTH F650  Anthropological Perspectives on Russian America
3 Credits
An in-depth study of Russian penetration in North America, Russian institutions, and Russian impacts on the Aleut, Tlingit and Yup'ik. Included in Removed Catalog Course Listing excel sheet effective for 2004-05 catalog
Prerequisites: Graduate standing or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F657  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 or permission of instructor.
Recommended: ANTH/BIOL/ECON/NRM F647.
Cross-listed with BIOL F667; ECON F667; NRM F667.
Lecture + Lab + Other: 2 + 0 + 0

ANTH F658  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; or permission of instructor.
Cross-listed with BIOL F668; ECON F668; NRM F668.
Lecture + Lab + Other: 2 + 0 + 0

ANTH F670  Oral Sources: Issues in Documentation
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, or permission of instructor.
Cross-listed with NORS F670.
Stacked with ANTH F470; NORS F470.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F672  Culture and History in the North Atlantic
3 Credits
Offered Fall Odd-numbered Years
Study of 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 or permission of instructor.
Cross-listed with NORS F672.
Stacked with ANTH F472.
Lecture + Lab + Other: 3 + 0 + 0

ANTH F675  Political Ecology
3 Credits
Offered Fall Odd-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 or permission of instructor.
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 F680 and FISH F680.
Cross-listed with MSL F680 and FISH F680.
Lecture + Lab + Other: 0 + 0 + 5-16

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 F140  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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS F154</td>
<td>Human Relations</td>
<td>3</td>
<td>Attribates, self-concepts, personal communication styles, motivation, interactions, positive reinforcements, team building and leadership development.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F155</td>
<td>Business Math</td>
<td>1-3</td>
<td>Review of basic math computation skills applied to various business areas. Emphasis on applications.</td>
<td>Lecture + Lab + Other: 1-3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F158</td>
<td>Introduction to Tourism</td>
<td>1-3</td>
<td>Forces which influence international and domestic hospitality, leisure, travel and recreation industries. Socioeconomic models and measure of regional impact, demand and supply.</td>
<td>Lecture + Lab + Other: 1-3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F160</td>
<td>Principles of Banking</td>
<td>3</td>
<td>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.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F161</td>
<td>Personal and Business Finance</td>
<td>3</td>
<td>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.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F170</td>
<td>Business English</td>
<td>3</td>
<td>Comprehensive review of grammar, punctuation, capitalization and spelling, with emphasis on business and office occupations.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F175</td>
<td>Customer Service</td>
<td>3</td>
<td>Presents 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.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F178</td>
<td>Professionalism</td>
<td>3</td>
<td>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.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F179</td>
<td>Fundamentals of Supervision</td>
<td>3</td>
<td>Effective supervisory concepts including planning, organizing and staffing functions. Communicating and delegating effectively, morale, productivity, decision making, positive position discipline and performance goals development.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F182</td>
<td>Office Procedures</td>
<td>3</td>
<td>Duties and responsibilities of general office employees including filing, processing mail, telephone communication, meeting the public, office supplies, banking, employment procedures and grooming.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F183</td>
<td>Professional Skills for Job Hunt</td>
<td>1-3</td>
<td>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.</td>
<td>Lecture + Lab + Other: 1-3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F188</td>
<td>Personal Income Tax</td>
<td>1</td>
<td>Taxable income, deductions, credit, exemptions, and computation. Computer use, record keeping methods, tax forms and new tax laws.</td>
<td>Lecture + Lab + Other: 1 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F199</td>
<td>Practicum in Applied Business</td>
<td>1-3</td>
<td>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.</td>
<td>Lecture + Lab + Other: 1 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F201</td>
<td>Principles of Accounting II</td>
<td>3</td>
<td>Introduction to accounting concepts and procedures for a business. Emphasis is on the accounting cycle and the recording, summarizing and interpretation of accounting data.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>ABUS F202</td>
<td>Principles of Accounting III</td>
<td>3</td>
<td>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.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
</tbody>
</table>
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; concurrent enrollment or completion of ABUS F201; ABUS F220.
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.
Prerequisites: ACCT F261X; ABUS F142.
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
Offered Fall
Management functions, including planning, organizing, staffing, directing and controlling, human aspects of management, and decision making.
Prerequisites: BA F151X; or permission of instructor.
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
Offered Fall
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
Offered Fall
Legal aspects of business problems. Principles, institutions and administration of law in contracts, agency, employment, personal sales and property ownership.
Prerequisites: BA F151X.
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.
Recommended: BA F151X.
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
Offered Spring
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.
Recommended: BA F151X.
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 F265 or permission of instructor.
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 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 ENGL 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
Offered As Demand Warrants
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 F276  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 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: 0 + 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 or permission of instructor.
Lecture + Lab + Other: 3 + 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

Art (ART)

ART F101  Introduction to Ceramics
3 Credits
Offered As Demand Warrants
Making and firing clay objects. Study of clay methods, forming decorations, glazing and firing. For beginning students only.
Lecture + Lab + Other: 3 + 0 + 0

ART F104  Introduction to Drawing
1-3 Credits
Offered As Demand Warrants
Still life, portrait, interior and landscape compositions using basic drawing materials. Emphasizes self-expression by developing spontaneous artistic ideas into a more focused style. For the student with little or no training in drawing to explore his or her drawing abilities.
Lecture + Lab + Other: 1-3 + 0 + 0

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
Provides an introduction to fundamental concepts and organization of three-dimensional forms, which include but are not limited to the applied arts and industrial design. Various materials such as clay, glass, metal and wood will be utilized. This course is recommended for students becoming B.A. or B.F.A. Art majors in Ceramics, Metalsmithing, Native Art and Sculpture.
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 ENGL F111X or higher; sophomore standing; or permission of instructor.
Attributes: UAF Core Aesthetic Appreciation, UAF GER Arts Req
Lecture + Lab + Other: 3 + 0 + 0
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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: 1 + 4 + 0
ART F231  Previsualization and Preproduction for Digital Cinema  (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 FLP A 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-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-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 the traditional designs and technologies of Native art.
Prerequisites: ART F105 or permission of instructor.
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 JRN 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 JRN 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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 1 + 4 + 0

ART F313 Intermediate Painting (0, h) 3 Credits
Continued development of expressive skills in painting in any media. Emphasis on pictorial and conceptual problems.
Prerequisites: ART F213; COMM F131X or COMM F141X.
Lecture + Lab + Other: 1 + 4 + 0

ART F324 Watercolor Painting and Composition (h) 3 Credits
Offered Every Third Spring
Development of individual approach to watercolor media. Can be repeated for credit with permission of instructor.
Prerequisites: ART F223.
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: COMM F131X or COMM 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 art historical pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Non-objective Art, Abstract Expressionism, Pop Art, Realism and many other "isms."  
Prerequisites: ART F262X; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
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 or permission of instructor.  
Cross-listed with ANS F365; ANTH F365.  
Lecture + Lab + Other: 3 + 0 + 0  

ART F366  Intermediate Native Art Studio  (h, a)  
3 Credits  
Understanding and applying advanced traditional designs and technologies of Native art.  
Prerequisites: ART F268 or permission of instructor.  
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 JRN F204 or FLPA F260 or JRN F290; COMM F131X or COMM F141X.  
Cross-listed with JRN 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 or permission of instructor.  
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, cross-cultural variations in definition of an artist's role.  
Prerequisites: Senior standing or permission of instructor.  
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; COMM F131X or COMM 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 or permission of instructor.  
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 or permission of instructor.  
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 JRN F402; ART F487 or JRN F407 or permission of instructor.  
Cross-listed with JRN 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; COMM F131X or COMM F141X.  
Lecture + Lab + Other: 1 + 4 + 0
<table>
<thead>
<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>
</tr>
</thead>
<tbody>
<tr>
<td>ART F417</td>
<td>Lithography</td>
<td>(h)</td>
<td>3</td>
<td>Offered Every Third Spring</td>
<td>ART F105; ART F207; or permission of instructor.</td>
<td>1 + 4 + 0</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>An exploration of stone and metal plate lithography. May be repeated for credit with permission of instructor.</td>
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<tr>
<td>ART F419</td>
<td>Life Drawing</td>
<td>(h)</td>
<td>3</td>
<td>Drawing from life; study of artistic anatomy. May be repeated for credit with permission of instructor.</td>
<td>ART F305 or permission of instructor.</td>
<td>1 + 4 + 0</td>
</tr>
<tr>
<td>ART F424</td>
<td>Field Artists of the North</td>
<td>(O, h, a)</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>ART F105; a studio art course (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or JRN F203); COMM F131X or COMM F141X; STACKED WITH ART F624; NORS F624.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>ART F425</td>
<td>Visual Images of the North</td>
<td>(W, a)</td>
<td>3</td>
<td>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.</td>
<td>ENGL F111X; ENGL F211X or F213X; or permission of instructor.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>ART F427</td>
<td>Relief</td>
<td>(h)</td>
<td>3</td>
<td>Offered Every Third Fall</td>
<td>ART F105; ART F207; ART F213; or permission of instructor.</td>
<td>1 + 4 + 0</td>
</tr>
<tr>
<td>ART F428</td>
<td>Elementary Internship</td>
<td>(O)</td>
<td>3-15</td>
<td>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.</td>
<td>COMM F131X or COMM F141X; SUCCESSFUL COMPLETION OF METHODS PRACTICUM AND METHODS COURSE-WORK WITH A C OR BETTER.</td>
<td>1 + 0 + 42</td>
</tr>
<tr>
<td>ART F433</td>
<td>Advanced Field Painting</td>
<td>(h)</td>
<td>1</td>
<td>Offered As Demand Warrants</td>
<td>ART F313 or ART F333.</td>
<td></td>
</tr>
<tr>
<td>ART F437</td>
<td>Intaglio</td>
<td>(h)</td>
<td>3</td>
<td>Intaglio printmaking with emphasis on experimentation and color photo intaglio printing. May be repeated for credit with permission of instructor.</td>
<td>ART F105; ART F162; ART F207; or permission of instructor.</td>
<td>1 + 4 + 0</td>
</tr>
<tr>
<td>ART F447</td>
<td>Silkscreen</td>
<td>(h)</td>
<td>3</td>
<td>Silkscreen printing with photo process. May be repeated for credit with permission of instructor.</td>
<td>ART F105; ART F162; ART F207; or permission of instructor.</td>
<td>1 + 4 + 0</td>
</tr>
<tr>
<td>ART F453</td>
<td>Kiln Design and Construction</td>
<td>(h)</td>
<td>3</td>
<td>Kiln design and construction including building and firing a kiln. May be repeated for credit with permission of instructor.</td>
<td>ART F201 or permission of instructor.</td>
<td>1 + 4 + 0</td>
</tr>
</tbody>
</table>
ART F459  Secondary Internship  (O)
3 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: COMM F131X or COMM F141X; successful completion of methods practicum and methods course work with a C or better.
Cross-listed 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 phenomena 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. Cross-listed: ANTH F460; FLPA F460
Prerequisites: Junior, senior or graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ART F463  Seminar in Art History  (h)
3 Credits
Offered Fall Odd-numbered Years
A seminar providing 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 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: JRN F402 or ART F483; JRN F404; or permission of instructor.
Cross-listed with JRN F405.
Stacked with JRN 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 photo mechanical processes. Elements of electrophotography and desktop publishing explored. May be repeated for credit with permission of instructor.
Prerequisites: ART F105; ART F207; ART F262X; or permission of instructor.
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. May be repeated for credit with permission of instructor.
Prerequisites: ART F368 or permission of instructor.
Cross-listed with ANS F468.
Lecture + Lab + Other: 1 + 4 + 0

ART F469  Architecture: Art, Design, Technology and Social Impact  (W, h)
3 Credits
Offered Spring 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 and working spaces, artistic design and aesthetics.
Prerequisites: ART F261X and ART F262X or HUM F201X ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with HUM F469.
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: COMM F131X or COMM F141X; JRN F250; JRN F350 or ART F371 or JRN F371; one college level studio art course.
Cross-listed with JRN 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 or equivalent; COMM F131X or COMM F141X. Prerequisites: ART/FLPA F231; ART/FLPA F371; Cross-listed with FLPA F472; JRN 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: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
Recommended: ART F261X; ART F262X.  
Cross-listed 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 JRN F472 or FLPA F472 or equivalent.
Cross-listed with FLPA F475.
Lecture + Lab + Other: 1 + 4 + 0
ART F483 Advanced Photography  
(H) 3 Credits
Offered Spring
Continuation of JRN F203/ART F28. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography.
Prerequisites: JRN F203 or ART F283 or instructor permission.
Cross-listed with JRN 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 JRN F484.
Stacked with ART F688 and JRN 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: JRN F203 or ART F283 or permission of instructor.
Cross-listed with JRN F407.
Lecture + Lab + Other: 2.5 + 2 + 0
ART F488 Professional Practices  
3 Credits
This class provides a foundation of practical information for students as they begin to consider various career options in the visual arts. Topics include writing about the students' own 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ART F490 Current Problems  
3 Credits
Offered Fall Even-numbered Years
A forum for discussion of those 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 or permission of instructor.
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, cross-cultural variations in definition of an artist's role.
Prerequisites: Senior standing or permission of instructor.
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 or permission of instructor.
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 or equivalent; 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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 JRN F203).
Cross-listed with NORS F624.
Stacked with ART F424.
Lecture + Lab + Other: 3 + 0 + 0

ART F625  Visual Images of the North  (a)
3 Credits
Offered Spring Odd-numbered Years
Examination of the two-dimensional imagery of the people and landscapes of the polar regions, centering on such issues as depiction of Arctic peoples and customs by Europeans, documentary vs. 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 NORS F625.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 0 + 0 + 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 or permission of instructor.
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 or permission of instructor.
Stacked with ART F463.
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: JRN F402; JRN F404; or permission of instructor.
Cross-listed with JRN F605.
Stacked with JRN 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; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 JRN F684.
Stacked with ART F484 and JRN F484.
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 or permission of instructor.
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 ENGL F111X or higher; placement in DEV M 105 or higher; or permission of instructor.
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 F 105X; CHEM F 106X; MATH F 302; PHYS F 212X.
Stacked with ATM F601; CHEM F601.
Lecture + Lab + Other: 3 + 0 + 0
ATM F413  Atmospheric Radiation
3 Credits
Offered Fall Odd-numbered Years
Atmospheric radiation including the 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/Co-requisites: ATM F401.

Cross-listed with PHYS F413.
Stacked with ATM F613 and 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
Fundamentals of equations of motion, conservation laws, balance relationships and coordinate systems. Vorticity dynamics includes vortex filaments and tubes, vorticity equations, Rossby-Haurwitz waves, Ertel’s PV principle for the potential vorticity, EPV in isentropic coordinates. Includes balance and quasi-geostrophy, QG theory, scaling of the QG system, the w equation, QG and numerical modeling. Prerequisites/Co-requisites: ATM F401.

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 or permission of instructor; basic computer skills.

Lecture + Lab + Other: 3 + 0 + 0

ATM 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

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 Spring Odd-numbered Years
Chemistry of the lower atmosphere (troposphere and stratosphere) including photo chemistry, kinetics, thermodynamics, box modeling, biogeochemical cycles and measurements 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/Co-requisites: ATM F601 or permission of instructor.

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; or permission of the instructor. 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/Co-requisites: ATM F601; graduate standing.
Cross-listed with PHYS F613.
Stacked with ATM F413 and 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; or permission of instructor. **Cross-listed with** ATM F415.

### 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 or permission of instructor.

### 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

### ATM F624  Oceanic-Atmospheric Gravity Waves
3 Credits
Offered Spring; As Demand Warrants
An introduction to the dynamics of surface and internal gravity waves in non-rotating and rotating fluids including, derivation/solutions of the wave equation, approximations to the governing equations, particle motions and wave energetics, dispersion relationships, phase and group velocities, normal mode and WKB theory, refraction, reflection, critical layer absorption, wave instabilities.
**Prerequisites:** MSL F620; MATH F302; or permission of instructor. **Cross-listed with** MSL F624.

### 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.

### 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. **Cross-listed with** ATM F444.

### 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/co-requisites:** ATM F601; graduate standing. **Cross-listed with** ATM F445.

### 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 or permission of instructor. **Cross-listed with** PHYS F647.

### ATM F656  Climate and Climate Change
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.
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 or permission of instructor.
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 or permission of the instructor.
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 or permission of instructor.  
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 or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0  

ATM F692P  Seminar  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

ATM F692  Seminar  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

ATM F698  Non-Thesis Research/Project  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 1-12  

ATM F699  Thesis  
1-12 Credits  
Lecture + Lab + Other: 0 + 0 + 1-12  

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 F103  Auto Tune-Up  
1 Credit  
Lecture + Lab + Other: 1 + 0 + 0  

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 F103  Auto Tune-Up  
1 Credit  
Lecture + Lab + Other: 1 + 0 + 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  
**Lecture + Lab + Other:** 0 + 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 or instructor permission.  
**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 F102 or permission of instructor.  
**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 or permission of instructor.
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 se 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 or concurrent enrollment or passing score on FAA Private or Commercial Pilot written exam, or permission of instructor; 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: Pilot's Certificate or enrollment in Aviation program.
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
Preparation for the FAA airline transport pilot written exam.
Prerequisites: Compliance with FAR 61.151 and 61.155 or department permission.
Lecture + Lab + Other: 4 + 0 + 0

AVTY F207  ATP Flying
2 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: 2 + 0 + 0

AVTY F211  Instrument Flying
3 Credits
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  (a)
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  (a)
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 F402  Aircraft Management
3 Credits
Offered As Demand Warrants
Securing, dispatching and monitoring aircraft operations. Safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling.
Lecture + Lab + Other: 3 + 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

AVTY F410  Techniques of Bush Flying  (a)
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  (n)
4 Credits
Offered Fall 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. Offered through UAF Community and Technical College, eLearning & Distance Education, Northwest and Rural campuses as demand warrants.
Prerequisites: Placement in ENGL F111X or higher; placement in DEVM F105 or higher; or permission of instructor.
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 and permission of instructor.
Lecture + Lab + Other: 0 + 3 + 0

BIOL F103X  Biology and Society  (n)
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 ENGL F111X or higher; placement in DEVM F105 or higher; or permission of instructor.
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 ENGL F111X or higher; placement in DEVM F105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0
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 ENGL F111X or higher; placement in MATH F151X or higher; CHEM F105X, may be taken concurrently; or permission of the instructor.
Recommended: High school biology.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

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 ENGL F111X or higher; placement in MATH F151X or higher; CHEM F105X, may be taken concurrently; BIOL F115X; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

BIOL F120X Introduction to Human Nutrition
4 Credits
Offered Spring
This course provides students with a 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 ENGL F111X or higher; placement in DEV M F105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

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.
Lecture + Lab + Other: 0.75 + 0.75 + 0

BIOL F150 Introduction to Marine Biology
3 Credits
Survey of marine organisms, evolution of marine life, habitats and communities of ocean zones, productivity and marine resources. For non-science majors; may not be used as biology elective credit for a major in biological science. Only available via eLearning & Distance Education.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F213X Human Anatomy and Physiology I (n)
4 Credits
Offered Fall
Integrated view of human structure and function for students in pre-professional allied health programs, biology, physical education, psychology and art. Covers cells, tissues and organs, skeletal and muscle systems, the nervous system, and integument.
Prerequisites: CHEM F103X or CHEM F105X; placement in ENGL F111X or higher; placement in DEV M F105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

BIOL F214X Human Anatomy and Physiology II (n)
4 Credits
Offered Spring
Integrated view of human structure and function for students in pre-professional allied health programs, biology, physical education, psychology and art. Examines circulatory, respiratory, digestive, excretory, endocrine and reproductive systems.
Prerequisites: BIOL F213X; CHEM F103X or CHEM F105X or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

BIOL F239 Introduction to Plant Biology (n)
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.
Lecture + Lab + Other: 3 + 3 + 0

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, or permission of the instructor.
Recommended: One course in chemistry.
Lecture + Lab + Other: 3 + 3 + 0

BIOL F260 Principles of Genetics
4 Credits
Principles of inheritance; physiochemical properties of genetic systems.
Prerequisites: BIOL F115X; BIOL F116X; CHEM F105X; MATH F151X or higher.
Lecture + Lab + Other: 3 + 3 + 0
BIOL 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

BIOL F288  Fish and Fisheries of Alaska  (a)
3 Credits
Offered Spring Even-numbered Years
This course will provide mid-level undergraduates 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 fish species. Finally, we will conclude with a brief overview of marine mammal fisheries in Alaska. The amount of coverage of each of these topics will vary depending on what is known about each group of organisms. Before enrolling students should have a basic understanding of basic 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: BIOL F116X and FISH F101; or permission of instructor
Cross-listed with FISH F288.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F301  Biology of Fishes
4 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 or equivalent; junior or senior standing.
Cross-listed with FISH F301.
Lecture + Lab + Other: 3 + 3 + 0

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; BIOL F271.
Lecture + Lab + Other: 3 + 3 + 0

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.
Prerequisites: BIOL F115X and BIOL F116X; or BIOL F213X and BIOL F214X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F331  Systematic Botany  (n)
4 Credits
Offered Spring Odd-numbered Years
Classification of flowering plants with emphasis on Alaskan flora; taxonomic principles, classical and experimental methods of research. Preregistration is required to ensure that each student will prepare a plant collection.
Prerequisites: BIOL F239 or permission of instructor.
Recommended: BIOL F260.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F335  Principles of Epidemiology
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 or higher or permission of instructor.
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 or concurrent enrollment.
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; LS F100X or LS F101X or successful completion of library skills competency test; or permission of instructor.
Lecture + Lab + Other: 3 + 3 + 0
Biology of insects and related arthropods, with emphasis on evolution, classification, behavior, life histories, identification, phylogeny and systematics, morphology, distribution and zoogeography. 

**Prerequisites:** BIOL F115X; BIOL F116X; junior standing or above; or permission of instructor.

**Offered Fall**

**Credits:** 3

**Cross-listed with:** GEOG F418.

**Stacked with:** BIOL F618; GEOG F618.

**Lecture + Lab + Other:** 3 + 0 + 0

**BIOL F425 Mammalogy**

Variety of mammals, their behavior, life histories, identification, phylogeny and systematics, morphology, distribution and zoogeography.

**Prerequisites:** BIOL F115X; BIOL F116X; junior standing or above; or permission of instructor.

**Offered Fall**

**Credits:** 3

**Lecture + Lab + Other:** 2 + 3 + 0

**BIOL F426 Ornithology**

Evolution, anatomy, physiology, distribution, migration, breeding biology of birds, their classification and identification.

**Prerequisites:** BIOL F115X; BIOL F116X; COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.

**Offered Spring**

**Credits:** 3

**Lecture + Lab + Other:** 2 + 3 + 0

**BIOL F427 Ichthyology**

Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology and importance to man.

**Offered Spring**

**Credits:** 4

**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 or equivalent; BIOL F260 or equivalent; or permission of instructor.
Recommended: BIOL F277; 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; F116X; MATH F151X; STAT F200X; ENGL F111X; ENGL F211X or ENGL F213X; senior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 3 + 0

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; or permission of instructor.
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 F310; STAT F200X; COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
Lecture + Lab + Other: 2 + 2 + 1

BIOL F455 Environmental Toxicology  (O)
3 Credits
Offered Fall Even-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 F451; BIOL F303; or one semester each of organic chemistry and cell or molecular biology; or permission of instructor; ENGL F111X; ENGL F211X or F213X; COMM F131X or COMM F141X.
Cross-listed with CHEM F455.
Stacked with BIOL F656; CHEM F655.
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; or permission of instructor.  
Stacked with BIOL F660.  
Lecture + Lab + Other: 3 + 0 + 0  

BIOL F462 Concepts of Infectious Disease (O)  
3 Credits  
Offered Spring  
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 F261 or BIOL F342; or permission of instructor.  
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 F213X and BIOL F214X; or permission of instructor.  
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.  
Prerequisites: BIOL F360, may be taken concurrent; or permission of instructor.  
Cross-listed with CHEM F466.  
Lecture + Lab + Other: 1.5 + 4.5 + 0  

BIOL 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 occurring problems and questions.  
Prerequisites: BIOL F371 or equivalent; COMM F131X or COMM F141X.  
Cross-listed with WLF F469.  
Stacked with BIOL F669; WLF F669.  
Lecture + Lab + Other: 2 + 3 + 0  

BIOL F471 Population Ecology (n)  
3 Credits  
Offered Spring  
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  

BIOL F472 Community Ecology (W)  
3 Credits  
Offered Spring Odd-numbered Years  
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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
Lecture + Lab + Other: 2 + 3 + 0  

BIOL F473 Limnology (W)  
3 Credits  
Offered Spring  
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; ENGL F111X; ENGL F211X or F213X or permission of instructor.  
Lecture + Lab + Other: 2 + 3 + 0  

BIOL F474 Plant Ecology (n)  
4 Credits  
Offered Spring Even-numbered Years  
Principles and contemporary topics in plant ecology. Autoecology, community ecology, ecosystem ecology and evolutionary ecology.  
Prerequisites: BIOL F239, BIOL F271, STAT F200X.  
Lecture + Lab + Other: 3 + 3 + 0  

BIOL F476 Ecosystem Ecology (W)  
3 Credits  
Offered Spring Odd-numbered Years  
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: ENGL F111X; ENGL F211X or F213X; COMM F131X or F141X; BIOL F371; STAT F200X; or permission of instructor.  
Lecture + Lab + Other: 3 + 0.5 + 0
Biology (BIOL)

BIOL F481  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. Note: STAT F200X may be taken concurrently.  
Prerequisites: BIOL F260; STAT F200X; junior standing; or permission of instructor.  
Stacked with BIOL F681.  
Lecture + Lab + Other: 3 + 3 + 0

BIOL F483  Stream Ecology  
3 Credits  
Offered As Demand Warrants  
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

BIOL 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; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.  
Cross-listed with WLF F485.  
Lecture + Lab + Other: 3 + 0 + 0

BIOL F486  Vertebrate Paleontology  (n)  
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 or permission of instructor.  
Cross-listed with GEOS F486.  
Stacked with GEOS F686; BIOL F686.  
Lecture + Lab + Other: 2 + 3 + 0

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.Stacked with BIOL F688  
Prerequisites: BIOL F115 and BIOL F116 or equivalent; BIOL F239 or BIOL F371; or permission of instructor.  
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 or BIOL F233 or BIOL F371 or BIOL F331; or permission of instructor.  
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; or permission of instructor.  
Lecture + Lab + Other: 1 + 0 + 6

BIOL F492  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 6

BIOL F492P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

BIOL F495  Special Topics  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 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 or permission of instructor.  
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 and permission of instructor.
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 organismal 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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F612  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: Graduate standing; or permission of instructor.
Stacked with BIOL F412.
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 the autumn students meet to discuss their internship experiences and make public presentations.
Prerequisites: ANTH/BIOL/ECON/NRM F667; ANTH/BIOL/ECON/ NRM F668; or permission of instructor.
Cross-listed with ANTH F617; ECON F613; NRM F613.
Lecture + Lab + Other: 2 + 0 + 0

BIOL F614  Foraging Ecology
2 Credits
Offered Spring Odd-numbered Years
The dynamics of herbivory, emphasizing the foraging process, and including mechanisms of feeding, feeding behavior, habitat and plant selection, physiological influences on feeding, plant and community level responses, plant defenses against herbivory and management of plant-herbivore systems.
Prerequisites: Graduate standing; or permission of instructor.
Cross-listed with WLF F614.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 3 + 0

BIOL F616  Ecological Background for Resilience and Adaptation
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; or permission of instructor.
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 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; or permission of instructor.
Stacked with BIOL F417.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F618  Biogeography
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; or permission of instructor.
Cross-listed with GEOG F618.
Stacked with BIOL F418; GEOG F418.
Lecture + Lab + Other: 3 + 0 + 0

BIOL F622  Current Issues in Conservation Biology
3 Credits
Offered Spring Odd-numbered Years
Critical discussion of contemporary issues concerning extinction patterns, population viability and the preservation, design and management of habitats for populations/species of concern. Stresses integration of principles and policies into strategies for biological conservation.
Prerequisites: Graduate standing; BIOL F471 or WLF F410; or permission of instructor.
Cross-listed with WLF F622.
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. Cross-listed with CHEM F628.  
**Prerequisites:** BIOL F465; BIOL F261 or F360 or equivalent; or permission of instructor.

**Lecture + Lab + Other:** 3 + 0 + 0

BIOL F632  Veterinary Bacteriology and Mycology  
3 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.  
**Prerequisites:** Successful completion of first semester veterinary courses. Cross-listed with DVM F637; MSL F637.

**Lecture + Lab + Other:** 3 + 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 or equivalent; or permission of instructor.  
**Recommended:** BIOL F277; 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.  
**Prerequisites:** Permission of instructor.  
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; or permission of instructor.  
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.  
**Prerequisites:** Permission of instructor.  
Stacked 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.  
**Lecture + Lab + Other:** 4 + 3 + 0

BIOL F644  Advanced Topics in Evolution  
3 Credits  
Offered Spring  
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; or permission of instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0

BIOL F647  Global to Local Sustainability (a)  
3 Credits  
Offered Fall  
Explores 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; permission of instructor.  
Cross-listed with ANTH F647; ECON F647; NRM F647.  
**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>Additional Information</th>
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</thead>
<tbody>
<tr>
<td>BIOL F649</td>
<td>Integrated Assessment and Adaptive Management</td>
<td>3</td>
<td>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. The class builds a portfolio of cases and conducts an integrated assessment. The course is designed to fit into the sequence of 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. 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.</td>
<td>Spring</td>
<td>Prerequisites: Graduate standing; or permission of instructor. Recommended: ANTH/BIOL/ECON/NRM F647; ANTH/BIOL/ECON/NRM F667. Cross-listed with ANTH F649; ECON F649; NRM F649. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>BIOL F656</td>
<td>Environmental Toxicology</td>
<td>3</td>
<td>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.</td>
<td>Fall Even-numbered Years</td>
<td>Prerequisites: CHEM F451; BIOL F303; or one semester each of organic chemistry and cell or molecular biology; or permission of instructor. Cross-listed with CHEM F655. Stacked with BIOL F455; CHEM F455. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>BIOL F657</td>
<td>Environmental Microbiology</td>
<td>3</td>
<td>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. Stacked with BIOL F457.</td>
<td>Fall</td>
<td>Prerequisites: BIOL F115X; BIOL F116X; BIOL F342; CHEM F105X; CHEM F106X or equivalent; or permission of instructor. Recommended: CHEM F451 or BIOL F303 or equivalent. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>BIOL F659</td>
<td>Wildlife Nutrition</td>
<td>4</td>
<td>The energy nutrient requirements of vertebrate animals in relation to their ecology, physiology and life history. Concepts and techniques used by wildlife biologists to understand relationships between wild animals and their habitats. Techniques for constructing energy and nutrient budgets of wild animals and applications of these budgets to population-level processes and habitat management.</td>
<td>Fall</td>
<td>Prerequisites: BIOL F310; BIOL F371; graduate standing; or permission of instructor. Cross-listed with WLF F660. Stacked with BIOL F459; WLF F460. Lecture + Lab + Other: 3 + 3 + 0</td>
</tr>
<tr>
<td>BIOL F660</td>
<td>Principles of Virology</td>
<td>3</td>
<td>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.</td>
<td>Spring</td>
<td>Prerequisites: Graduate standing; or permission of instructor. Stacked with BIOL F460. Lecture + Lab + Other: 3 + 0 + 0</td>
</tr>
<tr>
<td>BIOL F662</td>
<td>Concepts of Infectious Disease</td>
<td>3</td>
<td>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.</td>
<td>Spring</td>
<td>Prerequisites: Graduate standing; BIOL F261 or BIOL F342; or permission of instructor. Cross-listed with FISH F665. Lecture + Lab + Other: 1 + 3 + 0</td>
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<tr>
<td>BIOL F665</td>
<td>Aquatic Entomology</td>
<td>2</td>
<td>Aquatic invertebrate taxonomy, mostly to the family level, and ecology. Includes field trips to learn collecting techniques and habitats. Students must be able to safely wade in streams and wetlands.</td>
<td>Odd-numbered Years</td>
<td>Prerequisites: Graduate standing; or permission of instructor. Cross-listed with FISH F665. Lecture + Lab + Other: 1 + 3 + 0</td>
</tr>
<tr>
<td>BIOL F666</td>
<td>Scientific Teaching</td>
<td>2</td>
<td>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.</td>
<td>Spring Even-numbered Years</td>
<td>Prerequisites: Graduate standing or permission of the instructor. Lecture + Lab + Other: 2 + 0 + 0</td>
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<tr>
<td>BIOL F667</td>
<td>Resilience Seminar I</td>
<td>1</td>
<td>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.</td>
<td>Fall</td>
<td>Prerequisites: Student must be enrolled in Resilience and Adaptation graduate program; or permission of instructor. Recommended: ANTH/BIOL/ECON/NRM F647 (taken concurrently). Cross-listed with ANTH F667; ECON F667; NRM F667. Lecture + Lab + Other: 2 + 0 + 0</td>
</tr>
</tbody>
</table>
BIOL F668  Resilience Seminar II
1 Credit
Offered Spring
Provides a forum for new students of the Resilience and Adaptation graduate program to explore interdisciplinary research that are 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; or permission of instructor.
Cross-listed with ANTH F668; ECON F668; NRM F668.
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 occurring problems and questions.
Prerequisites: Graduate standing.
Cross-listed with WLF F669.
Offered Fall Odd-numbered Years
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; or permission of instructor.
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 F334; BIOL F474; or permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

BIOL F676  Interdisciplinary Modeling of High Latitude Global Change (a)
4 Credits
Offered Fall Odd-numbered Years
Introduces students to approaches to modeling how regional and global environmental change influences biological and social systems in high latitudes and how the responses of these systems influence the regional and global functioning of the earth system.
Prerequisites: STAT F200X or equivalent; graduate standing; or permission of instructor.
Cross-listed with NRM F676.
Lecture + Lab + Other: 3 + 3 + 0

BIOL F677  Advanced Topics in Plant Ecology and Systematics
3 Credits
Offered Spring
One of four topics is covered each year: 1) Current issues and concepts in plant population and community ecology. 2) Reproductive ecology—pollination, seed dispersal, breeding systems and coevolution. 3) Plant families of the world. 4) Plant-animal interactions—evolution and ecology.Note: May be repeated for credit when topic differs.
Prerequisites: BIOL F474; graduate standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 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 F230X; or permission of instructor.
Recommended: MATH F252X.
Cross-listed with CHEM F670.
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 analysis, 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; either graduate standing in a biologically oriented field; or permission of instructor.
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; or permission of instructor.
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 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; or permission of instructor.
Cross-listed with BIOL F486; GEOS F486.
Stacked with GEOS F686.
Lecture + Lab + Other: 2 + 3 + 0

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 or equivalent; BIOL F239 or
BIOL F371; or permission of instructor.
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_STACKED with BIOL F486.
Prerequisites: BIOL F239 or BIOL F233 or BIOL F371 or BIOL F331; or
permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

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 hands-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-
nprofit or nonprofit organizations.
Lecture + Lab + Other: 2 + 3 + 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 F254  Personal Finance
3 Credits
Emphasis on personal investments and financial management.
Lecture + Lab + Other: 3 + 0 + 0

BA F280  Sports 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. This course is cross-
listed with LEAD F280.
Lecture + Lab + Other: 3 + 0 + 0
BA F281 Sports Management
3 Credits
Offered As Demand Warrants
Provides a basic understanding of managing amateur and professional sports organizations and the legal issues involved. Topics such as stadium financing, risk management contracts and human resource management, public versus private sector labor laws, collective bargaining and drug testing will be examined.
Prerequisites: Sophomore standing.
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; or permission of instructor.
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: ENGL F111X or equivalent.
Lecture + Lab + Other: 3 + 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; ENGL F111X; ENGL F211X or ENGL F213X.
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.
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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>BA F436</td>
<td>Consumer Behavior (s)</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;Effects of nationality, culture, social class, family, personality, symbolism and persuasion on consumptive behavior. Qualitative methodologies such as focus groups covered. <strong>Prerequisites:</strong> BA F343 or PSY/SOC F330.</td>
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<tr>
<td>BA F445</td>
<td>Marketing Research (W)</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;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. <strong>Prerequisites:</strong> BA F343; ECON F227; ENGL F111X; ENGL F211X or ENGL F213X; upper division B.</td>
</tr>
<tr>
<td>BA F447</td>
<td>Compensation Management (O, W)</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;Theory and practice of wage and salary, benefits and risk management. Planning, administration, auditing, adjusting and budgeting for compensation and risk. <strong>Prerequisites:</strong> BA F307; COMM F313X or COMM F341X; ENGL F111X; ENGL F211X or ENGL F213X.</td>
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<tr>
<td>BA F453</td>
<td>Internship in Business Administration</td>
<td>1-3</td>
<td>Offered As Demand Warrants&lt;br&gt;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. <strong>Prerequisites:</strong> Accumulative 3.0 GPA in ACCT and BA courses.</td>
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<tr>
<td>BA F454</td>
<td>Student Investment Fund (O)</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;Hands-on experience in portfolio management. Students will be making investment and diversification decisions affecting the $500,000 Student Investment Fund. B.A. standing; permission of the SOM advisor or instructor. <strong>Prerequisites:</strong> COMM F313X or COMM F341X; BA F325 or equivalent; upper division B.</td>
</tr>
<tr>
<td>BA F455</td>
<td>Portfolio Management</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;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. B.A. standing; permission of the SOM advisor or instructor. <strong>Prerequisites:</strong> BA F454; upper division B.</td>
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<tr>
<td>BA F456</td>
<td>Small Business Management (W)</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;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. <strong>Prerequisites:</strong> ACCT F261X; ACCT F262; ENGL F111X; ENGL F211X or ENGL F213X.</td>
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<tr>
<td>BA F457</td>
<td>Training and Management Development</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;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. <strong>Prerequisites:</strong> BA F307.</td>
</tr>
<tr>
<td>BA F460</td>
<td>International Business (O)</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;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. <strong>Prerequisites:</strong> COMM F313X or COMM F341X. <strong>Recommended:</strong> Senior standing.</td>
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<tr>
<td>BA F461</td>
<td>International Finance</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;Development of analytical skills, logical thought processes and information literacy necessary to make and implement investment decisions in a global setting. <strong>Prerequisites:</strong> BA F325.</td>
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<tr>
<td>BA F462</td>
<td>Corporate Strategy (O)</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;An 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. <strong>Prerequisites:</strong> COMM F313X or COMM F341X; ACCT F262; BA F325; BA F343; BA F360; BA F390; ECON F321 or ECON F322 or ECON F324 or ECON F350; upper division B.</td>
</tr>
<tr>
<td>BA F467</td>
<td>Current Topics in Management</td>
<td>3</td>
<td>Offered Fall or Spring&lt;br&gt;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. <strong>Prerequisites:</strong> BA F307; BA F390.</td>
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University of Alaska Fairbanks
BA F470  Leadership Theory and Development
3 Credits
Offered Alternate Spring
A guide for interpreting leadership theories related to one another, and how students can apply the leadership theories to their personal development.
Prerequisite: ENGL F111X; ENGL F211X or ENGL F213X; COMM F131X or COMM F131X or COMM F141X and 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: ENGL F211X or ENGL F213X; COMM F131X or COMM F141X; BA F390 or permission of instructor.
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.
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 ENGL F111X or higher; placement in DEVM F105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F103X  Basic General Chemistry (n)
4 Credits
Offered Fall
Fundamentals of chemistry including historical and descriptive aspects as well as basic mathematical concepts. Fulfills the laboratory part of the natural science requirement and prepares the student for CHEM F105X.
Note: This course satisfies elective credit only.
Prerequisites: Placement in ENGL F111X or higher; placement in DEVM F105 or higher; or permission of instructor.
 Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F104X  Survey of Organic Chemistry and Biochemistry (n)
4 Credits
Offered Fall or Spring
Fundamentals of chemistry as applied to biological systems. Bridges the gap between a general chemistry course and biochemical concepts of other health-related sciences. Recommended for health-science degree candidates and non-science majors interested in the central role of chemistry in life. May be used to meet the general laboratory science requirement or for preparation for CHEM F105X.
Prerequisites: CHEM F103X; placement in ENGL F111X or higher; placement in DEVM F105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F105X-F106X, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. Major subjects include measurements, calculations, atomic and molecular structure, gas laws, stoichiometry, an introduction to organic chemistry, chemical reactions and related energy changes. Co-requisite: CHEM F105L. Students must be enrolled in both CHEM F105X and CHEM F105L to receive full credit.
Prerequisites: Placement in ENGL F111X or higher; placement in MATH F151X or higher; or a B- or better in CHEM F103X; or permission of instructor and department chair.
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 F105X  General Chemistry I (n)
4 Credits
CHEM F105X-F106X, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. Major subjects include measurements, calculations, atomic and molecular structure, gas laws, stoichiometry, an introduction to organic chemistry, chemical reactions and related energy changes. Co-requisite: CHEM F105L. Students must be enrolled in both CHEM F105X and CHEM F105L to receive full credit.
Prerequisites: Placement in ENGL F111X or higher; placement in MATH F151X or higher; or a B- or better in CHEM F103X; or permission of instructor and department chair.
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
Major subjects include reaction kinetics, equilibrium (including acids and bases, solubility and complex ion formation), nuclear chemistry, electrochemistry, and descriptive chemistry of the elements. Co-requisite: CHEM F106L. Students must be enrolled in both CHEM F106X and CHEM F106L to receive full credit.
Prerequisites: C- grade or better in CHEM F105X; placement in ENGL F111X or higher; placement in MATH F151X or higher; or permission of instructor and department chair.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

CHEM F111X  Introduction to Enviromental Chemistry of the Arctic  (a)  4 Credits
This course introduces students to enviromental chemistry through investigating the air, water and soil quality of the Arctic enviroment 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 or higher.
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 or equivalent.
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; or permission of instructor.
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; ENGL F211X or ENGL F213X and must be a Chemistry major or have permission of the instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 3 + 0

CHEM F325  Organic Chemistry II  (n)  4 Credits
Offered Spring
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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 or concurrent enrollment.
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 F322; CHEM F325.
Lecture + Lab + Other: 1 + 6 + 0

CHEM F406  Atmospheric Chemistry
3 Credits
Offered Spring Odd-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 or equivalent or permission of instructor.
Stacked with CHEM F606; ATM F606.
Lecture + Lab + Other: 3 + 0 + 0

CHEM F419  Practical Nuclear Magnetic Resonance
1 Credit
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: 0.5 + 1.5 + 0
CHEM 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. Discussion 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 neuropsychiatric disorders. Recommended: MATH F252X  
Prerequisites: Two F300-level courses in BIOL or CHEM; MATH F251X or MATH F230X; or permission of instructor.  
Cross-listed with BIOL F679.  
Stacked with CHEM F670.  
Lecture + Lab + Other: 3 + 0 + 0

CHEM 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 F417O or CHEM F470 or PSY F335.  
Stacked with CHEM F676.  
Lecture + Lab + Other: 3 + 0 + 0

CHEM 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: COMM F131X or COMM F141X.  
Lecture + Lab + Other: 2 + 0 + 0

CHEM 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; COMM F131X or COMM F141X.  
Lecture + Lab + Other: 2 + 0 + 0

CHEM 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. Recommended: CHEM F434 or CHEM F314; or permission of instructor.  
Lecture + Lab + Other: 0 + 6-9 + 0

CHEM F498  Research  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0

CHEM 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

CHEM 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

CHEM 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 or permission of instructor.  
Cross-listed with ENVE F641.  
Lecture + Lab + Other: 3 + 0 + 0

CHEM F606  Atmospheric Chemistry  
3 Credits  
Offered Spring Odd-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. Recommended or Co-requisites: ATM F601 or permission of instructor.  
Cross-listed with ATM F606.  
Stacked with CHEM F406.  
Lecture + Lab + Other: 3 + 0 + 0
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| CHEM F609   | Environmental Geochemistry                        | 3       | Spring Even-numbered Years | Focus on advanced topics and methods in chemistry of aquatic and soil environments. Detailed treatment of the thermodynamic, kinetic and structural principles involved in the description and modeling of low-temperature aqueous geochemical systems. Particular emphasis on heterogeneous interactions, including 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 or permission of instructor.  
Cross-listed with GEOS F633.  
Lecture + Lab + Other: 3 + 0 + 0 |
| CHEM F618   | Crystallography and Diffraction                   | 3       | 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 reflectivity. 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; or permission of instructor.  
Lecture + Lab + Other: 3 + 2 + 0 |
| CHEM F620   | Applications of NMR Spectroscopy                  | 3       | 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 or permission of instructor.  
Stacked with CHEM F420.  
Lecture + Lab + Other: 3 + 0 + 0 |
| CHEM F621   | Enzymology and Bio-Organic Chemistry              | 3       | 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       | 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       | 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 or equivalent or permission of instructor.  
Recommended: CHEM F402.  
Lecture + Lab + Other: 2 + 0 + 3 |
| CHEM F628   | Advanced Immunology                               | 3       | Fall Odd-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.  
Cross-listed with BIOL F628  
Prerequisites: BIOL F465; BIOL F261 or F360 or equivalent; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0 |
| CHEM F631   | Environmental Fate and Transport                  | 3       | 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       | 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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0 |
| CHEM F654   | Protein Structure and Function                    | 3       | 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 Even-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; BIOL F303; or one semester each of organic chemistry and cell or molecular biology; or permission of instructor.  
Cross-listed with BIOL F656.  
Stacked with BIOL F455; CHEM F455.  
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 F456; CHEM F461 or equivalent; or permission of instructor.  
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 recombination and 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; graduate standing; or permission of instructor.  
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; or permission of instructor.  
Cross-listed with STO F666; BIOL F666; GEOS F666.  
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; or permission of instructor.  
Recommended: MATH F252X.  
Cross-listed with BIOL F679.  
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 or permission of instructor.  
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 includes 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 F456; CHEM F461 or equivalent; or permission of instructor.  
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 or permission of instructor.
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 F417O 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 biochemistry 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 Fall
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 or permission of instructor.
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 IA
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 IB
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 or permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0

CHNS F100C Chinese Culture and Conversation IIA
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 or permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0

CHNS F100D Chinese Culture and Conversation IIB
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 or permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0
CHNS F101 Elementary Chinese I (h) 5 Credits
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.
Lecture + Lab + Other: 5 + 0 + 0

CHNS F102 Elementary Chinese II (h) 5 Credits
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: CHIN F101 or equivalent.
Lecture + Lab + Other: 5 + 0 + 0

CHNS F201 Intermediate Chinese I (h) 4 Credits
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 or equivalent.
Lecture + Lab + Other: 4 + 0 + 0

CHNS F202 Intermediate Chinese II (h) 4 Credits
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 or equivalent.
Lecture + Lab + Other: 4 + 0 + 0

Civil Engineering (CE)

CE F112 Elementary Surveying 3 Credits
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 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
Analysis of statically determinate and indeterminate structures to include beams, trusses and frames. Internal force resultants, shear and moment diagrams, deflections, internal stresses. Influence lines and criteria for moving loads. Indeterminate analysis to include methods of consistent deflections, slope deflection and moment distribution. Introduction to matrix methods.
Prerequisites: ES F209; ES F331.
Lecture + Lab + Other: 2 + 3 + 0

CE F334 Properties of Materials 3 Credits
Offered Fall
Lecture + Lab + Other: 2 + 3 + 0

CE F341 Environmental Engineering 4 Credits
Offered Spring
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. Special fees apply.
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: 2 + 3 + 0

CE F405 Highway Engineering 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. Co-requisite: CE F302 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 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
Prerequisites: CE F326; ES F301.
Lecture + Lab + Other: 3 + 0 + 0

CE F424  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: CE F326; or permission of instructor.
Recommended: CE F422; GE F384.
Stacked with CE F624.
Lecture + Lab + Other: 3 + 0 + 0

CE F432  Steel Design
3 Credits
Offered Fall
Design philosophies and current practice related to steel design are covered. Describes how the understanding modes of failure are used to design structural members with an appropriate factor of safety to satisfy strength and serviceability (performance). Tension members, fasteners, welds, column buckling, beam behavior and beam-columns will be discussed. The current AISC specifications are used.
Prerequisites: CE F331; ES F331.
Lecture + Lab + Other: 3 + 0 + 0

CE F433  Reinforced Concrete Design
3 Credits
Offered Spring
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. Alternative 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 team work are learned and used during the semester. The final structure will be load tested and graded based on meeting the goals of the specification.
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; COMM F131X or COMM F141X; ENGL F111X or ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 3 + 0 + 0

CE F438  Design of Engineered Systems II (O, W)
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; CE F405 or CE F422 or CE F432 or CE F433 or CE F434 or CE F442 or CE F445; CE F437.
Lecture + Lab + Other: 3 + 0 + 0

CE F442  Environmental Engineering Design
3 Credits
Offered Fall
Design of pollution control and remediation systems. 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 or equivalent.  
Recommended: MATH F252X; graduate standing; or permission of instructor.  
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. Co-requisite: 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.  
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; or permission of instructor.  
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: Junior/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: Junior/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 F498  Research  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 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 (a)  
3 Credits  
Application of engineering fundamentals to problems of advancing civilization to polar regions. Logistics, foundations on frozen ground and ice thermal aspects of structures, materials, transport and communications, and heating and ventilating.  
Recommended: Senior standing or B.S. degree in engineering; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0
CE F605  Pavement Design
3 Credits
Offered As Demand Warrants
Current design techniques for flexible and rigid pavements. Materials characterization, loading considerations, empirical design methods, mechanistic design methods and rehabilitation.
Recommended: CE F402; graduate standing; or permission of instructor.
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. Graduate standing in CE; or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

CE F624  Frozen Ground Engineering  (a)
3 Credits
Offered Fall
Nature of frozen ground, thermal properties of frozen soils, classification, physical and mechanical properties of frozen soils, subsurface investigation of frozen ground and hazards, thaw settlement and thaw consolidation, slope stability and principles of foundation design in frozen ground.
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 F402 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

CE F626  Thermal Geotechnics
3 Credits
Offered As Demand Warrants
Prerequisites: CE F326; CE F422; CE F425; or permission of instructor.
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 or permission of instructor.
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 cycle 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
CE F632  Advance Structural Design
3 Credits
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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

CE F634  Structural Dynamics
3 Credits
Offered As Demand Warrants
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.
Prerequisites: ES F210; CE F331; MATH F302.
Lecture + Lab + Other: 3 + 0 + 0

CE F635  Numerical Methods for Geomechanics and Soil-Structure Interaction
3 Credits
Offered As Demand Warrants
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.
Prerequisites: CE F326; graduate standing; or permission of instructor.
Recommended: MATH F302.
Lecture + Lab + Other: 3 + 0 + 0

CE F637  Earthquakes: Seismic Response of Structures
3 Credits
Offered As Demand Warrants
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.
Prerequisites: ES F210 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

CE F640  Prestressed Concrete
3 Credits
Offered As Demand Warrants
Prerequisites: CE F331; CE F433.
Recommended: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

CE F646  Structural Composites
3 Credits
Offered As Demand Warrants
The basics of 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.
Prerequisites: ES F331; CE F331 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

CE F650  Bridge Engineering
3 Credits
Offered As Demand Warrants
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.
Prerequisites: CE F432; CE F433; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

CE F652C  Pre-Construction Contracts
1 Credit
Offered As Demand Warrants
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.
Lecture + Lab + Other: 4.5 + 0 + 0

CE F659A  Mentoring
1 Credit
Offered As Demand Warrants
This course will provide insight into how to "train the trainer." 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.
Lecture + Lab + Other: 4.5 + 0 + 0

CE F660A  Project Management Boot Camp
1 Credit
Offered As Demand Warrants
This course provides "basic training" in project management fundamentals, with emphasis on the management of engineering and construction projects. Much of the discussion is centered on the "triple constraint" 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.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 4.5 + 0 + 0
CE F661  Advanced Water Resources Engineering  
3 Credits 
Offered Spring Odd-numbered Years 
Engineering hydraulics and hydrology including use of standard computer models to solve water resource engineering problems. 
**Recommended:** Permission of instructor. 
**Lecture + Lab + Other:** 3 + 0 + 0 

CE F662  Open Channel and River Engineering  
3 Credits 
Offered Spring Even-numbered Years 
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. 
**Recommended:** Permission of instructor. 
**Lecture + Lab + Other:** 3 + 0 + 0 

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. 
**Recommended:** Permission of instructor. 
**Stacked with:** CE F463. 
**Lecture + Lab + Other:** 3 + 0 + 0 

CE F664  Sediment Transport  
3 Credits 
Offered Spring Even-numbered Years 
**Prerequisites:** Graduate standing or permission of instructor. 
**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, evapotranspiration, water in soils and stream response to water-input events. Offered Fall Even-numbered Years 
**Prerequisites:** MATH F253X; PHYS F211X; or permission of instructor. 
**Lecture + Lab + Other:** 3 + 0 + 0 

CE F682  Ice Engineering (a)  
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 (a)  
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 or equivalent. 
**Lecture + Lab + Other:** 3 + 0 + 0 

CE F684  Arctic Utility Distribution (a)  
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 or permission of instructor. 
**Lecture + Lab + Other:** 3 + 0 + 0 

CE F685  Topics in Frozen Ground Engineering (a)  
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 F681. 
**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 (COMM)**

COMM 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 

COMM 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
COMM 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

COMM F180X  Introduction to Human Communication  (s)  
3 Credits
Offered Spring
Critical thinking about fundamental concepts in human communication in interpersonal, group, public, organizational and intercultural settings. Introduction to inquiry into human communication as a social and human science.

Attributes: UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

COMM F201  Dispute Resolution and Restorative Practices  (s)  
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: ENGL F111X; COMM F131X or COMM F141X; PS/ECN F100X or JUST F110X.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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: ENGL F111X or permission of instructor

Lecture + Lab + Other: 3 + 0 + 0

COMM 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: ENGL F111X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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 ENGL F111X or higher; or permission of instructor.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

COMM F302  Dispute Systems Design  (s)  
3 Credits
Offered Spring 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, systematic conflict, and introduces ways to harness conflict for positive organizational outcomes.

Prerequisites: JUST F201; ENGL F211X or ENGL F213X; or permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM F330  Intercultural Communication  
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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: COMM F313X or COMM F141X; any lower-division communication course; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
COMM F335  Organizational Communication  (O, s)  
3 Credits  
Examines current theoretical and methodological approaches undergirding 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: COMM F131X or COMM F141X; any lower-division communication course; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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 the interpersonal, organizational and cultural contexts. Exploration of cultural female/male dichotomy as well as individual similarities.  
Prerequisites: Any lower-division communication course or permission of instructor.  
Cross-listed with WGS F351.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F352  Family Communication  (s)  
3 Credits  
Examination 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 or permission of instructor.  
Recommended: COMM F322.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F353  Conflict, Mediation and Communication  (s)  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F360  Introduction to Public Relations  
3 Credits  
Offered Fall  
Introduction to the theories, practices, principles and history of public relations. COMM F131X or COMM F141X or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F361  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: COMM F360; or ABUS F263.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F380  Communication and Diversity  (s)  
3 Credits  
Offered Spring  
Provides students with a cognitive and experiential foundation for understanding how the communication process works in the context of diversity. Includes an in-depth examination of those processes and products of processes that lead communicators to devalue differences in one another.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F3X6  COMM F300X Substitute  (h)  
3-12 Credits  
Attributes: UAF GER Ethics Req  
Lecture + Lab + Other: 0 + 0 + 0  

COMM 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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F425  Communication Theory  (W, s)  
3 Credits  
Offered Spring  
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.  
Prerequisites: ENGL F111X, ENGL F211X or ENGL F213X; any F300-level communication courses; senior standing; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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: COMM F131X or COMM F141X; senior standing.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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 this course.  
Prerequisites: COMM F131X or COMM F141X; ENGL F111X, ENGL F211X or ENGL F213X.  
Cross-listed with ANTH F435 and LING F435.  
Lecture + Lab + Other: 3 + 0 + 0
COMM 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 or permission of instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM 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:** JUST F302; ENGL F211X or ENGL F213X; or permission of the instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM F452 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:** JUST F302; ENGL F211X or ENGL F213X; or permission of the instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM F453 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 approach to mediation. **Prerequisites:** JUST F302; ENGL F211X or ENGL F213X; or permission of the instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM 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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM F469 Communication Internship 1-3 Credits
Offered As Demand Warrants
Links academic and professional on-site learning. Students must arrange an appropriate internship. The internship must be relevant to communication, provide guided learning experiences in a profession that would be appropriate and of interest for employment after graduation, and include a minimum of 150 hours on-site. COMM F469 receives a deferred grade, which will then be completed following (or concurrent) fall semester when the student enrolls in COMM F470. Evaluation will be done by both site supervisor and course instructor, and the grade assigned will apply to the credits for both COMM F469 and COMM F470. **Prerequisites:** Junior or senior standing; permission of instructor. *Lecture + Lab + Other: 0 + 0 + 10-30*

COMM F470 Communication Internship Seminar 3 Credits
Offered As Demand Warrants
Will improve job-hunting and networking skills and apply organizational communication theories (workplace socialization processes, cultural rituals, negotiation of power, social capital, emotional labor, etc.). COMM F469 receives a deferred grade, which will then be completed following (or concurrent) fall semester when the student enrolls in COMM F470. Evaluation will be done by both site supervisor and course instructor, and the grade assigned will apply to the credits for both COMM F469 and COMM F470. **Prerequisites:** COMM F469; junior or senior standing; permission of instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM 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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM F480 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 or permission of instructor. *Lecture + Lab + Other: 3 + 0 + 0*

COMM F482 Capstone Seminar in Communication (O, W, s) 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:** COMM F131X or COMM F141X; COMM F401; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor. *Lecture + Lab + Other: 3 + 0 + 0*
COMM 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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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: COMM/JRN F601 is a required core course for the M.A. in Professional Communication.  
Cross-listed with JRN F601.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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: COMM F601; COMM F625; or permission of the instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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.  
Cross-listed with JRN F625.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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: COMM F600.  
Recommended: COMM F625.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM 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  

COMM 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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

COMM F640  Political Media and Discourses of the American Right  
3 Credits  
The 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 are not part of the scope of the class.  
Prerequisites: Graduate standing.  
Cross-listed with ANTH F635 and LING F635 Stacked with ANTH F435;LING F435.  
Lecture + Lab + Other: 3 + 0 + 0
COMM 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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 or permission of instructor; award of teaching assistantship in communication.
Lecture + Lab + Other: 1 + 0 + 2

COMM 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COMM F698  Non-Thesis Research/Project  
1-6 Credits
Offered As Demand Warrants

COMM 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

Community Health (CHP)

CHP F131  Community Health Aide I  
8 Credits
Offered As Demand Warrants
Introduction to providing village primary health care services with remote supervision of a physician. Topics include CHP standard of care, use of the CHA/P Manual, history-taking and physical exam, lab tests, reporting to the physician, medical charting and medication administration. Supervised clinical experiences prepare the student to conduct patient evaluation of common village health problems of children and adults. Introduction to human anatomy and function, wellness and disease concepts, crisis intervention and emergency care. A 200-hour field component at the students' village clinic follows the didactic program.
Prerequisites: Employed as CHA by a health corporation or permission of the instructor.
Lecture + Lab + Other: 8 + 0 + 0

CHP F132  Community Health Aide II  
8 Credits
Offered As Demand Warrants
Reinforces problem-oriented patient encounter process. Includes patient education, introduction to prenatal and well child care, sexually transmitted diseases, HIV, substance abuse, mental illness and death and dying issues. Session I material and emergency care are reinforced and expanded upon. Includes 200-hour field component at the student's village clinic.
Prerequisites: CHP F131.
Lecture + Lab + Other: 8 + 0 + 0
CHP F133  Community Health Aide III
8 Credits
Offered As Demand Warrants
Session II content reinforced and expanded upon. Additional topics include prenatal care, family planning, fetal alcohol syndrome, emergency delivery techniques, newborn and well child care including immunizations, nutrition, dental health, adult health surveillance, family violence and sexual abuse/rape and clinic management. A 200-hour field component at the students’ village clinic follows the didactic program.
Prerequisites: CHP F132.
Lecture + Lab + Other: 8 + 0 + 0

CHP F134  Community Health Aide IV
8 Credits
Offered As Demand Warrants
Common patient problems within the body systems are reviewed with a focus on assessment skills and management plans. Previous session content is reviewed. Follow-up care for patients with chronic illness, injury prevention, tuberculosis, cancer, environmental health, post partum care, adolescent care and older adult/elder care. A 200-hour field component at the students’ village clinic follows the didactic program.
Prerequisites: CHP F132.
Lecture + Lab + Other: 8 + 0 + 0

CHP F135  Community Health Aide Preceptorship
2 Credits
Offered As Demand Warrants
Supervised primary care clinical experience. Minimum of 30 contact hours of direct patient care required. Students provide patient care in a variety of clinical settings including outpatient (acute and emergency care), prenatal, well child and chronic care clinics. Additional experiences are scheduled with the referral center (hospital) departments.
Prerequisites: CHP F134.
Lecture + Lab + Other: 2 + 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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 1-3 + 0 + 0

CHP F210  CHAM Use and Documentation (a)
1 Credit
Offered As Demand Warrants
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 or permission of instructor.  
Lecture + Lab + Other: 2 + 0 + 0

CHP F250  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  
ilnesses 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 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 F103P  Computer Survey  
1-3 Credits  
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 F130  Microcomputer Word Processing  
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 F133  Microcomputer Presentation Software  
1-3 Credits  
Offered As Demand Warrants  
Designing effective presentations. Includes organizing and designing  
an effective presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F133P  Microcomputer Presentation Software  
1-3 Credits  
Offered As Demand Warrants  
Designing effective presentations. Includes organizing and designing  
an effective presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 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 F135P  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. Also available via e-Learning  
and Distance Education.  
Recommended: CIOS F150 or equivalent computer literacy including  
saving/retrieving files, use of office applications, Internet and e-mail.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150P  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150S  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150SP  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150SP  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150SP  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150SP  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150SP  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150SP  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
Recommended: CIOS F150 or equivalent skills.  
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F150SP  Microcomputer Survey  
1-3 Credits  
Offered As Demand Warrants  
Comprehensive exploration of topics related to using microcomputer  
operating systems. Includes creating, formatting and revising documents;  
using proofreading and editing tools; implementing styles; using  
templates; and customizing the application. Designing effective  
presentations. Includes organizing and designing an effective  
presentation of information using current microcomputer  
software.  
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 e-mail tools; developing searching strategies; current and future trends; and basic web authoring. Develop a basic understanding of technologies and protocols used on the Internet.
Recommended: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F146A   Using the Internet
1-3 Credits
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: Basic computer literacy, including saving and retrieving files and using basic software.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F146B   Using the Internet
1-3 Credits
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: 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
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: Basic computer literacy, including saving and retrieving files and using basic software.
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 F150P   Computer Business Applications
1-3 Credits
Basic introduction to using a computer and office applications. Includes the operating system, how to save/retrieve files; word processing (document creation and formatting; spreadsheets (basic formulas and functions); and the Internet (browsing, searching and e-formulas and functions); and the Internet (browsing, searching and e-mail). NOTE: (Provides basic computer literacy and prepares for CIOS F110; CIOS F130; CIOS F134 and CIOS F146. No previous computer experience is required.
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.
Prerequisites: Instructor approval.
Lecture + Lab + Other: 1-4 + 0 + 0

CIOS F217   Information Technology Certification III
1-4 Credits
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.
Prerequisites: Instructor approval.
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 F233A   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 computer literacy including saving/retrieving files, use of office applications, Internet and e-mail.
Lecture + Lab + Other: 0 + 0 + 0

CIOS F233B   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 computer literacy including saving/retrieving files, use of office applications, Internet and e-mail.
Lecture + Lab + Other: 0 + 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 F255A  Microcomputer Graphics
1-3 Credits
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 computer literacy including saving/retrieving files, use of office applications, Internet and e-mail.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F255B  Microcomputer Graphics
1-3 Credits
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 computer literacy including saving/retrieving files, use of office applications, Internet and e-mail.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F256A  Internet Authoring and Design
1-3 Credits
Comprehensive survey of a professional authoring tool to create documents for effective distribution through the Internet. Includes design and preparation of documents for electronic distribution.
Recommended: CIOS F146 and F150 or equivalent computer literacy including saving/retrieving files, use of office applications, Internet and e-mail.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F256B  Internet Authoring and Design
1-3 Credits
Comprehensive survey of a professional authoring tool to create documents for effective distribution through the Internet. Includes design and preparation of documents for electronic distribution. Also available via Independent Learning.
Recommended: CIOS F146 and F150 or equivalent computer literacy including saving/retrieving files, use of office applications, Internet and e-mail.
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

CIOS F275P  Information Technology: Special Topics
1-3 Credits
Comprehensive coverage of a specific information technology topic.
Recommended: CIOS F150 or equivalent computer literacy including saving/retrieving files, use of office applications, Internet and e-mail.
Lecture + Lab + Other: 1-3 + 0 + 0

CIOS F503  Applying Telecommunications
1 Credit
Design and implementation of an approved project using telecommunications in the classroom or work place, or an in-depth research paper. Ongoing Independent Learning.
Prerequisites: CIOS F502.
Lecture + Lab + Other: 1 + 0 + 0

Computer Science (CS)

CS F101  Computers and Society
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 F102  Introduction to Computer Science
3 Credits
Introduction to computer science including a discussion of binary numbers, data representation, hardware, software, programming layers, operating systems, applications and networks. This web-based course is offered through eLearning & Distance Education.
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 F205  C Programming  
3 Credits  
Offered As Demand Warrants  
A high-level programming course using C for students with some experience in other programming languages such as Java, Perl, Basic, Pascal or Fortran.  
Prerequisites: One year high school programming, CS F103 or CS F201 or ES 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 F307  Discrete Mathematics  
3 Credits  
Logic, counting, sets and functions, recurrence relations graphs and trees. Additional topics chosen from probability theory.  
Prerequisites: MATH F252X, or permission of instructor.  
Cross-listed with MATH F307  
Lecture + Lab + Other: 3 + 0 + 0

CS F311  Data Structures and Algorithms  
3 Credits  
Data structures and the algorithms for their manipulation. Object-oriented programming, arrays, tables, stacks, queues, trees, linked lists, sorting, searching and hashing.  
Prerequisites: CS F202.  
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: ENGL F211X or ENGL F213X; COMM F131X or COMM 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 or permission of instructor.
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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
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 F431   Programming Language Implementation (W)
3 Credits
Offered As Demand Warrants
Design and implementation of major phases of high level language translators including scanning, parsing, translation, code generation and optimization. Students develop a compiler for a language in a group project which emphasizes good software engineering practices in structured design, testing and documentation.
Prerequisites: CS F331; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

CS F441   System Architecture
3 Credits
Offered Fall
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 F451   Automata and Formal Languages
3 Credits
Offered Spring Odd-numbered Years
Finite automata, regular languages, phrase structured grammars, context free language, push down automata, deterministic context free languages, recursive and recursively enumerable languages, Turing machines, decision problems, and undecidability.
Prerequisites: MATH F307; CS F201.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
CS F471  Senior Capstone I (W)
3 Credits
Offered Fall
Introduction to basic software engineering principles, techniques, methods and standards as applied to the engineering of complex software systems. Topics from software system development process models, multiple view system modeling and specification using UML, classification of software systems, project management and legal issues.
Prerequisites: Senior standing; CS F311; ENGL F314 or 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: Senior standing; 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 + 0 + 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 high performance qualitatively correct simulations, rather than high-precision solutions.
Prerequisites: CS F381 and PHYS F212X.
Lecture + Lab + Other: 3 + 0 + 0

CS F490  Student Internship
1-3 Credits
Students work on computer science project under the joint direction of a faculty member and participating industry or governmental agency.
Prerequisites: Junior standing and acceptance in an approved internship program.
Lecture + Lab + Other: 0 + 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 F602  Software Project Management
3 Credits
Offered Spring
Work in an IT project environment to produce appropriate documentation and reports. Nature, ethics and legal considerations of managing IT projects are discussed. Includes project management, design methodologies, scope management, risk management, human-machine interface and IT team interactions.
Prerequisites: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 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
Prerequisites:

- Knowledge of calculus, linear algebra, and computer programming.
- Cross-listed with MATH F661.

Lecture + Lab + Other: 3 + 0 + 0

CS F625  Database Systems Design
3 Credits
Offered Fall
The design and analysis of database systems including data independence, relationships, and organization. Focus on data models, file organization and security, index organization, data integrity and reliability. Review of current database software packages. Design and implementation of a database application project.
Prerequisites: CS F311.
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 F651  The Theory of Computation
3 Credits
Offered Spring Odd-numbered Years
Languages and formal models of algorithms: Turing machines, phrase structured grammars and recursive functions. Undecidability, the halting problem, Rice's Theorem.
Prerequisites: CS F451.
Lecture + Lab + Other: 3 + 0 + 0

CS 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 condition. Applications to management, physical and life sciences. Computational work with the computer.
Prerequisites: Knowledge of calculus, linear algebra, and computer programming.
Cross-listed with MATH F661.
Lecture + Lab + Other: 3 + 0 + 0

CS F670  Computer Science for Software Engineers
3 Credits
An overview and survey of the theoretical underpinnings of computer science. Topics are taken from the areas of algorithms and data structures; computer architecture; computer networks, communications and operating systems; computability and formal languages; languages and compilation.
Prerequisites: Graduate standing.
Cross-listed with SWE F670.
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.
Cross-listed with SWE F671.
Lecture + Lab + Other: 3 + 0 + 0

CS F672  Software Process Improvement
3 Credits
Offered Spring Odd-numbered Years
Commonly applied methods for improving the software development process. Emphasis on the Software Engineering Institute’s Capability Maturity Model, and specifically on the key process areas of Level 2 and Level 3 of that model. These include software configuration management, software quality assurance and software standards.
Prerequisites: CS F671 or permission of instructor.
Cross-listed with SWE F672.
Lecture + Lab + Other: 3 + 0 + 0

CS F673  Software Requirements Engineering
3 Credits
Offered As Demand Warrants
Focus on the requirements analysis phase of the software development life cycle. Study ways to obtain, analyze and specify complete and correct sets of requirements. Critique of selected requirements analysis models. Study of current large scale software developments that have failed or are failing. Development of software requirements specifications for large and real software systems via team efforts.
Prerequisites: CS F671 or permission of instructor.
Cross-listed with SWE F673.
Lecture + Lab + Other: 3 + 0 + 0

CS F674  Software Architecture
3 Credits
Offered Spring
Software architectural styles are introduced and defined as structural descriptions of software systems. Methods for constructing and binding software systems are introduced and specified as operational views. The architectural approach, as a classical engineering method for describing structure and behavior of technical artifacts, will be applied for the composition of software systems.
Prerequisites: CS F671.
Cross-listed with SWE F674.
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 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.
Cross-listed with SWE F691.
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

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: CIOS F150 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: CIOS F150 or equivalent skills.
Lecture + Lab + Other: 4 + 0 + 0

CITS F204  Introduction to Network Support and Administration
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 or instructor approval.
Lecture + Lab + Other: 1-3 + 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 concepts 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: CIOS 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: CIOS 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: CIOS 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

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 routing 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 or permission of instructor. 
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; or permission of instructor.  
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; or permission of instructor.  
Lecture + Lab + Other: 4 + 0 + 0

CITS F249  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 or permission of instructor.  
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: 1-3 + 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 or permission of instructor.  
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 and permission of instructor.  
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

Construction Management (CM)

CM F102  Methods of Building Construction
3 Credits
Offered As Demand Warrants
Introduces basic knowledge of building materials, technical specifications, techniques, and systems. Outlines structural systems, construction processes, and assemblies. Includes a field project student team research of current Alaskan building type.
Lecture + Lab + Other: 3 + 0 + 0

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 + 1 + 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 F102; CTT F103; CTT F104.)
Prerequisites: CTT F101 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 to CTT F111; CTT F112; CTT F113; CTT F114.)
Prerequisites: CTT F100 or permission of instructor.
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 or permission of instructor.
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 F110 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission instructor approval.
Lecture + Lab + Other: 1 + 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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 2 + 6 + 0

CTT F121  Train the Trainer
2 Credits
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 or permission of instructor.
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: 2 + 0 + 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 be 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  
Inform students of the basic knowledge of installing a garbage disposal unit 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 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.  
**Prerequisite:** Instructor approval.  
**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 F150  Plumbing--Level I**  
4 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 ten (10) modules. Each module must be successfully completed. (Alternative: CTT F151; CTT F152; CTT F153; and CTT F154.)  
**Prerequisites:** CTT F110 or permission of instructor.  
**Lecture + Lab + Other:** 3 + 2 + 0

**CTT F151  Introduction to Plumbing Tools and Drawings**  
1 Credit  
Offered As Demand Warrants  
Introduction to a plumber's basic hand and power tools, their care and maintenance, and safety procedures. 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 to CTT F150 when taken with CTT F152; CTT F153; and CTT F154.)  
**Prerequisites:** CTT F110 or permission of instructor approval.  
**Lecture + Lab + Other:** 1 + 0.5 + 0

**CTT F153  Plastic and Copper Pipe and Fittings**  
1 Credit  
Offered As Demand Warrants  
Introduction to the various types of plastic and copper pipe used in the plumbing industry. Includes various methods of joining plastic and copper pipe and a variety of fittings commonly found in commercial and residential dwellings. (Alternative to CTT F150 when taken with CTT F152; CTT F153; and CTT F154.)  
**Prerequisites:** CTT F152 or permission of instructor.  
**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 sewer and waste treatment plants. (Alternative to CTT F150 when taken with CTT F151; CTT F152; CTT F153.)  
**Prerequisites:** CTT F153 or permission of instructor.  
**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 or permission of instructor.  
**Lecture + Lab + Other:** 4.5 + 7 + 0
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</table>
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COUN F623   Counseling Theories and Applications I
3 Credits
Offered Fall 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 or permission of instructor.
Cross-listed with PSY F660.
Lecture + Lab + Other: 3 + 2 + 0

COUN F627   Developmental Interventions
3 Credits
Offered Spring
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 the Counseling program; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COUN F632   Career Development
3 Credits
Offered Spring; Summer
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

COUN F634   Practicum in Individual Counseling
3 Credits
Offered Fall; Spring; Summer Even-numbered Years
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; or permission of instructor.
Lecture + Lab + Other: 2 + 7 + 0

COUN F634P  Practicum in Individual Counseling
3 Credits
Offered Spring, Alternate Summer, 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: Admission to the Counseling program; COUN F623; and permission of instructor.
Lecture + Lab + Other: 2 + 7 + 0

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; or permission of instructor.
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; or permission of instructor.  
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; or permission of the instructor.  
Cross-listed with PSY F646.  
Lecture + Lab + Other: 3 + 0 + 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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
COUN F650  Cross-Cultural 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 or permission of the instructor.  
Cross-listed with PSY F650.  
Lecture + Lab + Other: 3 + 0 + 0  
COUN F660  Cross-Cultural Counseling  (a)  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; or permission of instructor.  
Cross-listed with PSY F661.  
Lecture + Lab + Other: 3 + 0 + 0  
COUN F666  Family and Network Therapy  3 Credits  
Offered Spring  
Survey of concepts and theories of function and dysfunction in the area of couples and families as social networks. In addition, it provides an introduction to the skills necessary for one who would intervene in these systems.  
Prerequisites: COUN F623; admittance to the Counseling program; or School Counseling Certification program; or permission of instructor.  
Cross-listed with PSY F666.  
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 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 or permission of instructor.  
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 needed skills in working with groups in a counseling situation.  
Prerequisites: COUN F623; admittance to Counseling program; or School Counseling Certification program; or permission of instructor.  
Cross-listed with PSY F674.  
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; permission of the instructor.
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; or permission of the instructor.
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; or permission of instructor.
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 (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; or permission of instructor.
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. Junior standing and ENGL F211X or F213X; or permission of instructor.
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 or approval of the instructor.
Lecture + Lab + Other: 3 + 0 + 0

CCS 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: Graduate standing or permission of instructor.
Cross-listed with ED F603.
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 or approval of the instructor. 
Cross-listed with ED F604. 
Lecture + Lab + Other: 3 + 0 + 0  

CCS F608  Indigenous Knowledge Systems  (a)  
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 or approval of instructor. 
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 or approval of the instructor. 
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; or permission of instructor. 
Cross-listed with ED F619. 
Stacked with CCS F418; ED F419. 
Lecture + Lab + Other: 3 + 0 + 0  

CCS F620  Critiquing Indigenous Literature for Alaska's Children  (a)  
3 Credits  
Offered As Demand Warrants  
Provides educators with a comprehensive framework for reviewing literature that is written about and for Alaska's indigenous children. An in-depth look at how children's literature influences the image of the indigenous children of Alaska and provides a foundation for selecting curriculum materials that accurately represent and address the cultural context of the students and communities they serve. This is an e-learning/audio-conference course. 
Prerequisites: Graduate standing, teaching certificate, or approval of the instructor. 
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
Culinary Arts and Hospitality (CAH)

Culinary Arts and Hospitality (CAH)

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 or permission of instructor.
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 their 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

CAH F008C CEU Course
0.1-10 Credits
Lecture + Lab + Other: 1-100 + 0 + 0

CAH F060 Basic Techniques of Cooking I
3 Credits
Basics in the culinary arts field designed for students with special needs.
Prerequisites: Permission of instructor.
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.
Prerequisites: Permission of instructor.
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. Prerequisite/co-requisite: CAH F101; CAH F150.
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. Prerequisite/co-requisite: CAH F101; CAH F140; CAH F150.
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 through 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 brioches from France, sweet and fruity panettone from Italy, fresh mocha from Japan and much more! Prerequisite/co-requisite: CAH F101; CAH F140.
Lecture + Lab + Other: 0.5 + 3 + 0
CAH F199   Culinary Arts Externship
2 Credits
The student will complete a 240 hour externship. Students will be required 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 Starches
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, expediter, 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 or permission of
instructor.
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 or permission of instructor.
Lecture + Lab + Other: 1 + 6 + 0

CAH F250   Garde Manger
4 Credits
Students study traditional upscale pantry preparation. Students practice
techniques for artistic displays of hors d’oeuvres, canape’, pate’, terrines
and charcuterie. The student gains practical experience preparing and
serving theme buffets for guests.
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,
and inventories and costs are explored as they affect business operations.
Prerequisites: CAH F101.
Lecture + Lab + Other: 2 + 0 + 0

CAH F257   Introduction to Wine Appreciation
1 Credit
This is a foundation wine course with a focus on learning systematic
professional tasting techniques, identifying the classic grape varietals,
understanding the characteristics of wine, learning the language of wine,
and beginning to identify how to pair wine with food. Proper service
techniques and how to navigate an extensive wine list will also be
explored.
Prerequisites: Students must be at least 21 years of age to enroll.
Lecture + Lab + Other: 0.5 + 1 + 0

CAH F258   Intermediate Wine Appreciation
1 Credit
This course will focus on the study of wine from around the world
with an emphasis on the similarities and differences of those regions.
Consideration will be given to the influence of climate, topography, and
culture along with many other factors that affect the grapes. A goal will
be to identify the varietals through focused blind tastings. Focus will be
on preparing the new sommelier with special attention given to selecting
wines with integrity for a cellar. Costing and inventory controls will also
be covered. Must be 21 years of age to enroll.
Prerequisites: CAH F257 or permission of the instructor.
Lecture + Lab + Other: 0.5 + 1 + 0
Dental Assisting (DA)

DA F132  Administrative Procedures for the Dental Assistant
2 Credits
Offered Fall
Administrative responsibilities performed by dental assistants in dental facilities. Includes duties of the office assistant, receptionist or secretary, and insurance coordinator. Focus on reception, telephone procedures, scheduling, public relations, insurance and professionalism.
Prerequisites: High school graduation, GED, or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

DA F150  Dental Radiography
4 Credits
The study of film and digital radiographic techniques in the dental practice. Introduces student to radiographic anatomy and radiation physics. Includes safety in exposing, processing and mounting dental radiographs. Presents hazardous materials handling, equipment operation and maintenance. Prepares students for the Dental Assisting National Board's radiology health and safety examination.
Lecture + Lab + Other: 3 + 2 + 0

DA F151  Dental Infection Control
2 Credits
Principles and practices of infection control in the dental office. Includes knowledge of disease, microbiology, transmission prevention and methods of compliance with OSHA and CDC regulations. Prepares students for the Dental Assisting National Board's infection control examination.
Lecture + Lab + Other: 2 + 0 + 0

DA F152  Dental Materials and Applications
4 Credits
Physical and chemical properties of restorative dental materials and the application of those materials. Includes properties and manipulation of gypsum material, impression materials and custom trays, basic crown and bridge procedures.
Prerequisites: DA F151 or may be taken concurrently.
Lecture + Lab + Other: 2 + 4 + 0

DA F153  Anatomy for Dental Assistants
3 Credits
Study of anatomy as it applies to the field of dental assisting. Includes basic body systems and an in-depth examination of dental embryology, histology, morphology and head/neck anatomy.
Lecture + Lab + Other: 3 + 0 + 0

DA F251  Clinical Chairside I for Dental Assistants
6 Credits
Introduction to dental assisting. Beginning skills necessary to function as a chairside dental assistant in a general dentistry practice. Emphasis on developing clinical skills in four-handed dentistry techniques.
Prerequisites: Permission of program coordinator.
Lecture + Lab + Other: 3 + 6 + 0

DA F252  Clinical Chairside II for Dental Assistants
6 Credits
Emphasizes advanced dental assisting skills necessary in general dentistry. Includes taking impressions for study models, radiography, matrix assembly, rubber dam application, assisting with the administration of local anesthetics, temporary crowns, oral health and nutrition. Includes introduction to specialty practices.
Prerequisites: DA F251.
Lecture + Lab + Other: 3 + 6 + 0

DA F253  Clinical Chairside III for Dental Assistants
3 Credits
Continued learning in the dental specialties including prosthodontics, endodontics, periodontics, pedodontics, orthodontics, and oral and maxillofacial surgery.
Prerequisites: DA F251; DA F252; permission of program coordinator.
Lecture + Lab + Other: 2 + 2 + 0

DA F254  Dental Assistant Practicum
4 Credits
Clinical, off-campus course for dental assisting students. Placement in general and specialty dental offices under direct supervision by participating dentist and program faculty. Includes seminars to discuss progress and experiences.
Prerequisites: DA F132; DA F150; DA F152; DA F153; DA F251; DA F252; DA F253; enrollment by special permission only.
Lecture + Lab + Other: 1 + 0 + 20

Dental Hygiene (DH)

DH F111  Dental Anatomy, Embryology and Histology
2 Credits
Offered Fall
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
Courses approved for spring 2008 in 2008-2009 cycle. 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
Courses approved for spring 2008 in 2008-2009 cycle. 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
Courses approved for spring 2008 in 2008-2009 cycle. 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
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

DH F285  Clinical Practicum III
6 Credits
Offered Spring
Provides opportunity to achieve clinical skill competency with individuals
presenting themselves with moderate to advanced periodontal disease.
Learning occurs through student practice and individualized instruction.
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 F293  Special Topics
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0
DH F310  Oral Pain Control for Dental Hygienists  
3 Credits  
Offered Fall  
Examines pharmacology, armamentarium, anatomical and physiological consideration, 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 English (DEVE)

DEVE F053  SAT/ACT English Prep and Review  
1 Credit  
Offered As Demand Warrants  
The objective of this course is to review and prepare students for the English sections of the SAT and ACT tests. In addition to supplying an overview of the structure for each English component of the SAT and ACT, the course will provide students with vocabulary review, test-taking tips and strategies (both for the general test and tailored to specific sections), and review and practice of the sections.  
Lecture + Lab + Other: 1 + 0 + 0

DEVE F060  Preparatory College Writing I  
3 Credits  
Intensive basic work in the process of writing and revising paragraphs and short academic papers. Focus on basic sentence and paragraph structure, revision techniques, and basic critical reading in the academic context. Students who earn a C or better will be qualified for DEVE F104.  
Prerequisites: Appropriate placement test scores.  
Lecture + Lab + Other: 3 + 0 + 0

DEVE F068  College Writing Skills  
1-3 Credits  
Individualized instruction in written language skills. Open entry/open exit, one credit modules in spelling/vocabulary, writing and grammar usage. Enrollment in one or more modules based on diagnosed need or student decision; may be repeated. Does not fulfill degree requirements in written communications or humanities.  
Lecture + Lab + Other: 1-3 + 0 + 0

DEVE F068A  English Skills: Spelling/Vocabulary  
1-3 Credits  
Individualized instruction in written language skills. Open entry/open exit, one credit modules in spelling/vocabulary, writing and grammar usage. Enrollment in one or more based on diagnosed need or student decision; may be repeated. Does not fulfill degree requirements in written communications or humanities. Graded Pass/Fail  
Lecture + Lab + Other: 0 + 0 + 0

DEVE F068B  English Skills: Grammar/Usage  
1-3 Credits  
Individualized instruction in written language skills. Open entry/open exit, one credit modules in spelling/vocabulary, writing and grammar usage. Enrollment in one or more based on diagnosed need or student decision; may be repeated. Does not fulfill degree requirements in written communications or humanities. Graded Pass/Fail  
Lecture + Lab + Other: 0 + 0 + 0

DEVE F068C  English Skills Lab: Sentence/Paragraph  
1-3 Credits  
Individualized instruction in written language skills. Open entry/open exit, one credit modules in spelling/vocabulary, writing and grammar usage. Enrollment in one or more based on diagnosed need or student decision; may be repeated. Does not fulfill degree requirements in written communications or humanities. Graded Pass/Fail  
Lecture + Lab + Other: 0 + 0 + 0

DEVE F104  Preparatory College Writing II  
3 Credits  
Intensive intermediate work in the process of writing and revising short academic papers. Focus on complex sentence and paragraph structure, major revision techniques, and critical reading in the academic context. Qualifies students for DEVE F109 and provides preparation for ENGL F111X.  
Prerequisites: C or better in DEVE F060; or appropriate placement test scores.  
Recommended: C or better in DEV5 F052.  
Lecture + Lab + Other: 3 + 0 + 0

DEVE F109  Preparatory College Writing III  
3 Credits  
Intensive preparatory work in the college writing skills needed for ENGL F111X, including research, writing and revising, and critical reading skills.  
Prerequisites: C or better in DEVE F104; or appropriate placement test scores.  
Recommended: C or better in DEV5 F105.  
Lecture + Lab + Other: 3 + 0 + 0

DEVE F194  Trial Course  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0

Developmental Math (DEV5)

DEV5 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

DEV5 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  
3 Credits  
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: Appropriate placement scores.  
Lecture + Lab + Other: 3 + 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. Prerequisite courses and/or placement exams must be taken within one calendar year.  
Prerequisites: Grade of B or better in DEVM F054A; or appropriate placement test scores; 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. 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 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 F054C; 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. PR# Prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.  
Prerequisites: DEVM F054; 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. Prerequisite courses and/or placement exams must be taken within one calendar year.  
Prerequisites: Grade of B or better in DEVM F054, or ABUS F155; or appropriate placement test scores; permission of instructor required.  
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: linear equations in two variables, graphing linear equations, find the slope of linear equations, writing equations of lines, exponent rules and operations on polynomials. 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: factoring polynomials, solving quadratic equations by factoring, simplifying rational expressions, operations with rational expressions, complex fractions, solving rational equations and applications of quadratic and rational 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 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 3 times per year: WINTERmester, MAYmester  
A 20-hour intensive review of math concepts offered 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 development 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. Prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.
Prerequisites: Grade of C- or better in DEVM F054; or ABUS F155; or appropriate placement test scores.
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 2 times per year: WINTERmester, MAYmester
A 20-hour intensive review of math concepts offered 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 development 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; ration; 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 fractions; 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. Prerequisite courses and/or placement exams must be taken within one calendar year prior to commencement of the course.
Prerequisites: Grade of C- or better in DEVM F055; or DEVM F062; or appropriate placement test scores.
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 exponential and complex numbers using alternative teaching styles. Prerequisite courses and/or placement exams must be taken within one academic year prior to commencement of the courses.
Prerequisites: DEVM F055; or DEVM F055F; or DEVM F062; or DEVM F105; or DEVM F105J; or appropriate placement scores.
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. Co-requisite DEVE F060.
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 or permission of instructor.
Lecture + Lab + Other: 1-3 + 0 + 0
DEVS F100  Introduction to Science
4 Credits
Introduction to skills needed to succeed in core science courses. Topics include scientific terminology, scientific mathematical notation, and the fundamentals of chemistry, physics and biology. Includes basic scientific lab techniques and the skills needed to learn scientific material.
Prerequisites: Elementary algebra and college reading level.
Lecture + Lab + Other: 3 + 3 + 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 F102  Introduction to Distance Education
1-3 Credits
Offered As Demand Warrants
A diverse menu of study skills for the student entering the distant learning college environment. Skills include: active listening, effective reading, taking usable notes, test preparation and test taking strategies, communication, and the use of technology as a study resource, all in the distance learning context. Additionally, personal development elements such as time management, working with university representatives, and accessing local resources will provide skills to maximize the learning experience and address the intrusive issues that impact the learning process.
Lecture + Lab + Other: 1-3 + 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 ENGL F111X without further placement testing.
Recommended: Placement into DEVE F104/DEVS F105.
Lecture + Lab + Other: 1-3 + 0 + 0
DEVS F104P  University Communications
1-3 Credits
Introduces the unique methods of communication required at the college level. May link with selected lecture courses. May be repeated.
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.
Prerequisites: C or better in DEVE F060/DEVS F052 or appropriate placement test scores.
Lecture + Lab + Other: 1-3 + 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

Placement by examination or student decision.
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 a supplement 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 a supplement instructional 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. Co-requisite: 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 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

DEVS F185  Straight Thinking  
3 Credits  
Offered As Demand Warrants  
A study of inductive, deductive and seductive thinking, and skill building to recognize and use all three. Critical thinking skills to analyze newspaper, magazine and spoken arguments. Political speeches and other media presentations examined. Effective and convincing presentation of one's own ideas including formal and informal logic.  
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; or permission of instructor.
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.
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. Also available eLearning & Distance Education.
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
Early Childhood Education (ECE)

ECE F101 Introduction to Early Childhood Profession
3 Credits
Includes historical foundation, current issues and trends, exposure to a
diversity 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 F105 Developmentally Appropriate Practice
1 Credit
Introduction to developmentally and culturally appropriate teaching
practice in early childhood settings. Topics include basic verbal skills,
including the teaching process, organizing a class, lesson planning and
curriculum development. Note: Successful completion of this course is
required prior to enrollment in any of the ECE activity classes.
Lecture + Lab + Other: 0.75 + 0.5 + 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
Establishing and maintaining safe, healthy and inclusive environments
for children ages 0-8. Emphasis is on environments that are
developmentally and culturally appropriate and encourage play,
exploration and learning. Topics include common illnesses, preventative
health care, safety aspects in indoor and outdoor settings as well as on
field trips. Laws and regulations relative to course content are included.
Lab required.
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F111 Nutrition for Young Children
1 Credit
Appropriate ways to meet the nutritional needs of infants and young
children, including laws, regulations and appropriate practices relative to
food handling service.
Lecture + Lab + Other: 1 + 0 + 0

ECE F112 Healthy Environments for Young Children
1 Credit
Establishing and maintaining a physically and psychologically safe
environment for children, including common illnesses, preventive health
care and Alaska laws and regulations relating to the health of young
children.
Lecture + Lab + Other: 1 + 0 + 0

ECE F113 Safe Environments for Young Children
1 Credit
Establishing and maintaining a physically and psychologically safe
environment for children, including safety aspects of caring for young
children and Alaska laws and regulations relating to safety.
Lecture + Lab + Other: 1 + 0 + 0

ECE F114 Learning Environments
1 Credit
Space, relationships, materials and routines as resources for
constructing interesting, secure and enjoyable environments that
encourage play, exploration and learning.
Lecture + Lab + Other: 1 + 0 + 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 ENGL F111X or higher; 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 F121 Physical Activities for Young Children
1 Credit
Essentials of creating an environment which provides space, materials, equipment and activities to promote the physical development of children.
Lecture + Lab + Other: 1 + 0 + 0

ECE F122 Cognitive Activities for Young Children
1 Credit
Curriculum planning and facilitation of activities and experiences which encourage questioning, probing and problem-solving skills appropriate for different developmental levels and various learning styles of young children.
Lecture + Lab + Other: 1 + 0 + 0

ECE F123 Language and Literature Activities for Young Children
1 Credit
Curriculum planning and facilitation of activities that help children acquire and use language as a means of communicating their thoughts and feelings. Includes nonverbal communication and understanding of others.
Lecture + Lab + Other: 1 + 0 + 0

ECE F124 Creative Activities for Young Children
1 Credit
Curriculum planning and facilitation of activities which provide a variety of experiences and media that stimulate children to explore and express their creative ability.
Lecture + Lab + Other: 1 + 0 + 0

ECE F125 Math Activities
1 Credit
Overview of how children construct mathematical meanings. Introduction to mathematical learning principles and experiences for children, 3-8 years.
Lecture + Lab + Other: 1 + 0 + 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 F127 Language and Creative Expression
3 Credits
Culturally and developmentally appropriate curriculum to promote language and literacy, creativity, and physical development. Emphasis on emergent curriculum, active learning, play observation and creative expression methodologies. Understanding of emergent literacy in young children and how to promote children's development in pre-reading activities. Emphasizes incorporating indigenous knowledge, local materials, resources, elders, artists and parents in addressing language and creative expression development in young children. Lab required.
Prerequisite: Placement in ENGL F111X or higher.
Lecture + Lab + Other: 2 + 2 + 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 F141 Class Management
1 Credit
Classroom management for teachers working with groups of children 3-8 years old. Explores skills needed to provide an environment in which children can begin to learn and practice appropriate and acceptable behaviors as individuals and as a group. Appropriate guidance including: setting limits, use of logical and natural consequences and helping children learn social problem solving, conflict resolution and negotiation.
Lecture + Lab + Other: 1 + 0 + 0

ECE F142 Social Development of the Young Child
1 Credit
Explores skills that help each child feel accepted in the group. Encourages communication empathy and mutual respect among children and adults. Emphasis on methods used to promote pro-social skills such as sharing, making friends, helping children learn social problem solving, conflict resolution and negotiation.
Lecture + Lab + Other: 1 + 0 + 0
ECE F143  Developing Positive Self-Concepts in Young Children  
1 Credit
Explores the importance of a strong self-concept and methods for helping children develop positive self-esteem. Emphasis on providing success-oriented activities, encouraging acceptance and expression of children's feelings and developing pride as an individual and as a member of a cultural/ethnic group.  
Lecture + Lab + Other: 1 + 0 + 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 F171  Program Management  
1 Credit
The importance of coordination and communication among staff in the classroom. Emphasis on effective group planning, using resources, improving communication, sharing knowledge of early childhood theories and approved practices. Maintaining records, and establishing and following policies, rules and regulations.  
Lecture + Lab + Other: 1 + 0 + 0

ECE F172  Professionalism  
1 Credit
Awareness of one's own personal qualities, feelings, and values that affect the teaching atmosphere; one's relationships with children; one's own teaching style.  
Lecture + Lab + Other: 1 + 0 + 0

ECE F173  Reflective Teaching  
1 Credit
Students will develop and expand their capacities to be self-reflective teachers. Promote skills to understand and reflect on early childhood principles, theories and their teaching practices in programs for young children birth to age eight.  
Prerequisites: ECE F101; ECE F104X; ECE F107; ECE F110; ECE F119; ECE F140; ECE F213; ECE F229.  
Lecture + Lab + Other: 0 + 3.5 + 0

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 ENGL F111X or higher; 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 F245; placement in ENGL F111X or higher; 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 F104; ECE F107.  
Lecture + Lab + Other: 2.5 + 1 + 0

ECE F240  Inclusion of Children with Special Needs  
(s)
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 ENGL F111X or higher; 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 ENGL F111X or higher; 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 ENGL F111X or higher.
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 ENGL F111X or higher.
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: ENGL F211X or ENGL F213X.
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: ENGL F111X.
Recommended: ENGL F211X or F213X; ECE F342.
Lecture + Lab + Other: 3 + 0 + 0

ECE F304  Attachment and Social Development
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: ENGL F111X, ENGL F211X or ENGL F213X.
Recommended: ECE F104X or ECE F110 or ECE F45 or 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: ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 3 + 0 + 0

ECE F306  Building Bridges to Support Family Mental Health
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: ENGL F111X; ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 3 + 0 + 0

ECE F310  Constructivist Curriculum
3 Credits
Offered Fall
A focus on the issues involved in developing constructive 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: ENGL F211X or ENGL F213X.
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: ENGL F211X or ENGL F213X.
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: ENGL F211X or ENGL F213X or equivalent.
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: ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 3 + 0 + 0

ECE F342  Family Relationships (0)
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: COMM F131X or COMM F141X; upper-division standing; or permission of instructor.
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: ENGL F211X or ENGL F213X.
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: ENGL F211X or F213X; ECE F107; ECE F245; 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: ENGL F111X; ENGL F211X or ENGL F213X.
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: ENGL F211X or ENGL F213X.
Recommended: ECE F104X, or ECE/PSY/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; ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 3 + 0 + 0

ECE F420  Developing Literacy in the Early Years (W)
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; ENGL F111X; ENGL F211X or ENGL F213X; upper-division standing; or permission of instructor.
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 F220; ENGL F111X; ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 2.5 + 0 + 1.5
ECE F430 Fine Arts for the Early Years (h)
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: ENGL F111X; ENGL F211X or ENGL F213X; 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
Focused 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 As Demand Warrants
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; ENGL F111X; ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 3 + 0 + 0

ECE F445 Adolescence Through the Lifespan (W)
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; ENGL F111X; ENGL F211X or ENGL F213X.
Lecture + Lab + Other: 2.5 + 0 + 1.5

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: ENGL F211X or ENGL F213X; 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 classroom research with emphasis on teacher as researcher. Techniques of classroom research will be studied and applied; including observation, question posing, note taking, data analysis, data interpretation, practica, and research report writing. Students should expect to be involved in the classroom setting for some or all of the school day for the entire university semester; approximately 200 hours.
Prerequisites: ENGL F211X or ENGL F213X; completion of all CDFS core major and 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: ENGL F211X or ENGL F213X; 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: ENGL F211X or ENGL F213X; admittance to the CDFS B.A. program.
Lecture + Lab + Other: 0.5 + 0 + 1

ECE F593 Special Topics
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0
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 ENGL F111X or higher or permission of instructor.
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 or equivalent; or permission of instructor.
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 or equivalent.
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 or equivalent.
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 or equivalent.
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.STAT F200X and ECON F227 or permission of instructor.
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: COMM F131X or COMM F141X; ECON F201X; ECON F202X or ECON F235X; MATH F230X or equivalent.
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 or equivalent.
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; ENGL F111X; ENGL F211X or F213X; MATH F230X or equivalent; upper division standing; or permission of instructor.
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; ENGL F111X; ENGL F211X or F213X; MATH F230X or equivalent; upper division standing; or permission of instructor.
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; ENGL F111X; ENGL F211X or ENGL F213X; MATH F230X or equivalent; or permission of instructor.
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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
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; ENGL F111X; ENGL F211X or ENGL F213X; MATH F230X or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ECON F463  International Economics  (W, s, a)
3 Credits
Prerequisites: ECON F201X; ECON F202X; ENGL F111X; ENGL F211X or F213X; MATH F230X or equivalent; or permission of instructor.
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 or equivalent; MATH F251X or equivalent; graduate standing; or permission of instructor.
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 or equivalent; graduate standing; or permission of instructor.
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 or equivalent; ECON F324 or equivalent; MATH F251X or equivalent; graduate standing; or permission of instructor.
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 eight to ten weeks of full time commitment and take place during the student's first summer in the program. In the autumn students meet to discuss their internship experiences and make public presentations.
Prerequisites: ANTH/BIOL/ECON/NRM F667; ANTH/BIOL/ECON/NRM F668; or permission of instructor.
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 or permission of instructor.
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 or equivalent; graduate standing; or permission of instructor.
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 or equivalent; MATH F251X or equivalent; STAT F401; graduate standing; or permission of instructor.
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 or equivalent; graduate standing; or permission of instructor.
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 or equivalent; MATH F251X or equivalent; graduate standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ECON F649  Integrated Assessment and Adaptive Management  (a)  
3 Credits
Offered Spring
Interdisciplinary exploration of 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 requirement. 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, or permission of instructor.
Recommended: ANTH/BIOL/ECON/NRM F647; ANTH/BIOL/ECON/NRM F648 and ANTH/BIOL/ECON/NRM F667 previously or concurrently.
Cross-listed with ANTH F649; BIOL F649; NRM F649.
Lecture + Lab + Other: 3 + 0 + 0

ECON F667  Resilience Seminar I  (a)  
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 or have permission of instructor.
Recommended: ANTH/BIOL/ECON/NRM F647 taken concurrently.
Cross-listed with ANTH F667; BIOL F667; NRM F667.
Lecture + Lab + Other: 2 + 0 + 0

ECON F668  Resilience Seminar II  (a)  
1 Credit
Offered Spring
Provides a forum for new students of the Resilience and Adaptation graduate program to explore issues of interdisciplinary research that are 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; or permission of instructor.
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

ECON F698  Non-Thesis Research/Project  
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

ECON F699  Thesis  
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

Education (ED)  

ED F099  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 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 F102  Orientation to Alaska Native Education  (a)  
2 Credits
A seminar in issues related to Alaska Native and rural education. Through weekly meetings held both on campus and in Fairbanks schools, students examine and discuss issues with Alaska Native educators on topics related specifically to rural and urban Alaska Native education. Issues include: Native ways of knowing, local control, curriculum development for small/multi-graded/rural schools, cultural differences in teaching and learning, and bilingual programs.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

ED F110  Becoming a Teacher in the 21st Century  (a)  
1 Credit
Introduction to the B.A. in Elementary Education degree along with the resources available through the UAF School of Education. Overview of what it means to be an elementary teacher in Alaska’s culturally, linguistically and geographically diverse schools through review of current educational context and various entities that shape educational policy and familiarization with UAF/AK Teacher Standards and assessment. Participation in an elementary classroom is required.
Lecture + Lab + Other: 1 + 0 + 0

ED F201  Introduction to Education  (a)  
3 Credits
Introduction to the profession of education and specifically, the field of teaching. Review 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; ENGL F111X; sophomore standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ED F204  Literature for Children
3 Credits
Examination of effective uses of literature to promote learning. Critical analysis of authors, illustrators and content of children’s literature representative of multiple genres and diverse peoples and perspectives -- including Alaska literature. Review of criteria for book selection and application of review process to books selected by students based on professional recommendations and reviews. Field experience required.
Prerequisites: ED F201.
Lecture + Lab + Other: 3 + 0 + 0

ED F237A  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 6 hours of direct instruction and 4-8 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 F237B  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 calendar and discussion board, submitting assignments, and checking grades.
Lecture + Lab + Other: 0.5 + 2 + 0

ED F237C  Technology Tools for Teachers: Google Drive
0.5 Credit
Offered Fall, Spring, As Demand Warrants
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 direct instruction and four to eight hours of lab work. This module covers the use of Google Drives (Google Apps) for word processing, creating presentation, working with spreadsheets/charting, converting documents to Office format, and sharing of documents.
Lecture + Lab + Other: 0.5 + 2 + 0

ED F237D  Technology Tools for Teachers: Office
0.5 Credit
Offered Fall, Spring, As Demand Warrants
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 basic uses of Microsoft Office (Word, PowerPoint, Excel) for productivity tasks.
Prerequisite: Access to MS Office is required.
Lecture + Lab + Other: 0.5 + 2 + 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: ENGL F111X or permission of instructor.
Cross-listed with ENGL F111X.
Lecture + Lab + Other: 3 + 0 + 0

ED F299  Practicum in Education
1-3 Credits
Lecture + Lab + Other: 0 + 0 + 0

ED F303  Language Acquisition (O, W)
3 Credits
Offered as Demand Warrants
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
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 strategies for the effective use of computers and related technologies in the classroom. Emphasis will be on the use of mainstream cross-platform productivity applications to develop understanding of the schemes for using databases, spreadsheets, page layouts, digital video, presentations and graphical organizers in transformed instructional settings. Students must have access to Word, PowerPoint, Excel, and Inspiration.
Prerequisites: ED F237A; ED F237B; ED F237C; ED F237C or passing the equivalent competency test, or permission of instructor; laptop computer 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; or permission of instructor.
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; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; 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 for 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 education reform efforts.  
Prerequisites: SOC F100X or permission of instructor.  
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 F370  Issues in Alaska Bilingual and Multicultural Education  (a)  
1 Credit  
Offered As Demand Warrants  
Current issues related to Alaska bilingual and multicultural education. Students must attend all three days of the annual Alaska Bilingual/ Multicultural Education and Equity Conference and write a paper reflecting on how they will use information gained from the conference in their own multicultural education context. Course may be repeated for credit since the content of the conference changes each year.  
Prerequisites: Prior course work at the lower-division level.  
Lecture + Lab + Other: 1 + 0 + 0

ED F380  Cultural Influences in Education  
3 Credits  
Offered As Demand Warrants  
Interdisciplinary study of the educational problems, concerns and successes in a variety of cultural contexts. Social, cultural and psychological factors inherent in the educational process and how they are affected by a multicultural setting. Attention given to curriculum improvement and teaching strategies appropriate for the multicultural classroom and school.  
Prerequisites: Junior standing.  
Lecture + Lab + Other: 3 + 0 + 0

ED F385  International Perspectives on Education  
3 Credits  
Offered As Demand Warrants  
A comparative analysis of the influences of changing political, social and economic conditions and relationships with other countries in the world on U.S. and Alaska education policies. Examination of school systems in several industrialized and developing countries with focus on understanding Alaska's educational system within the context of this wider global community.  
Prerequisites: Junior standing.  
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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; 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
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; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ED F440  Gender and Education (s)
3 Credits
Offered 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 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 or permission of instructor.
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. Ed. in Curriculum and Instruction option for post-baccalaureate students.
Prerequisites: Admission to K-12 Art post-baccalaureate licensure program or to M.
Stacked with ED F460.
Lecture + Lab + Other: 3 + 0 + 0

ED F450  Education and Cultural Transmission
3 Credits
Offered As Demand Warrants
Education as a process for transmitting culture with examination of issues related to cultural transmission in a multicultural environment. Emphasis on dynamics of cultural change.
Prerequisites: Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

ED F451  Practicum in Education
1-9 Credits
Practical application of general ideas and techniques addressed in methods courses in which the student is currently enrolled or previously completed.
Prerequisites: Permission of Office of Practical Experiences.
Lecture + Lab + Other: 0 + 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: COMM F131X or COMM 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: COMM F131X or COMM 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 day 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: COMM F131X or COMM 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 Spring
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 F462  Alaskan Environmental Education  (a)  3 Credits
Offered As Demand Warrants
Utilization of the environment inside and outside the formal classroom in all subject areas. Curriculum materials (K-12), interpretive and audiovisual aids, problem solving and applications to situations from the public schools to summer campus, short courses and workshops for individuals of any age.
Prerequisites: Junior standing.
Cross-listed with NRM F462.
Lecture + Lab + Other: 3 + 0 + 0

ED F465  Working with FAS/FAE Children  3 Credits
Offered Fall
For families of children with FAS/FAE and professionals—teachers, social workers and health workers who deal with these children. Guest speakers, interviews and reading materials. Project is the development of activities to use with these children with FAS/FAE. Access to work in a school setting required. (Not available on Fairbanks campus.)
Lecture + Lab + Other: 2 + 4 + 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  Synthesizing the Standards I  2 Credits
Offered Fall
For student interns participating in the first half of the professional internship year. Interns use the UAF/Alaska Teacher Standards as the basis for examining field- and course-based experiences and activities during the internship year. Includes collection and analysis of selected artifacts to document and provide evidence of professional development and achievement relative to educational standards. Interns present portfolio for midyear assessment. 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: COMM F131X or COMM F141X; admission to the Internship Year.
Lecture + Lab + Other: 2 + 0 + 6

ED F469  Synthesizing the Standards 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 as a basis for examining field- and course-based experiences and activities during the internship year. Includes collection and analysis of selected artifacts to document and provide evidence of professional development and achievement relative to educational standards. Interns formally present completed portfolios for reviews and evaluations. Concurrent internship required.
Prerequisites: Admission to the Internship Year.
Lecture + Lab + Other: 1 + 0 + 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED F476</td>
<td>Assessment of Literacy Development</td>
<td>1</td>
<td>Spring</td>
<td>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. <strong>Prerequisites:</strong> Admission to the internship year or permission of the instructor. <strong>Lecture + Lab + Other:</strong> 1 + 0 + 22</td>
</tr>
<tr>
<td>ED F478</td>
<td>Math Methods and Curriculum Development</td>
<td>3</td>
<td>Fall</td>
<td>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. <strong>Prerequisites:</strong> Admission to Internship Year. <strong>Stacked with:</strong> ED F678. <strong>Lecture + Lab + Other:</strong> 2 + 0 + 8</td>
</tr>
<tr>
<td>ED F479</td>
<td>Science Methods and Curriculum Development</td>
<td>3</td>
<td>Spring</td>
<td>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. <strong>Prerequisites:</strong> Admission to internship year; concurrent enrollment in other internship year courses; Alaska passing scores for three Praxis I exams. <strong>Stacked with:</strong> ED F688. <strong>Lecture + Lab + Other:</strong> 2.5 + 0 + 4</td>
</tr>
<tr>
<td>ED F486</td>
<td>Media Literacy</td>
<td>3</td>
<td></td>
<td>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. <strong>Prerequisites:</strong> COMM F131X or COMM F141X; junior standing; laptop computer. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
</tr>
<tr>
<td>ED F601</td>
<td>Introduction to Applied Social Science Research</td>
<td>3</td>
<td></td>
<td>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. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>ED F603</td>
<td>Field Study Research Methods</td>
<td>3</td>
<td></td>
<td>Focus on techniques for conducting both quantitative and qualitative field research. Particular emphasis on considerations for conducting field research in cross-cultural settings. <strong>Prerequisites:</strong> ED F601. <strong>Cross-listed with:</strong> CCS F603. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
</tr>
<tr>
<td>ED F604</td>
<td>Documenting Indigenous Knowledge</td>
<td>3</td>
<td>Fall</td>
<td>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. <strong>Recommended:</strong> Graduate-level survey course in research methods or approval of instructor. <strong>Cross-listed with:</strong> CCS F604. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
</tr>
<tr>
<td>ED F606</td>
<td>Alaska Native Education</td>
<td>(a)</td>
<td>Fall</td>
<td>School systems historically serving Native people, current efforts toward local control and the cross-cultural nature of this education. Field experience required. Stacked with ANS F420; ED F420. <strong>Prerequisite:</strong> ANTH F242 and graduate standing or permission of instructor. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
</tr>
<tr>
<td>ED F608</td>
<td>Indigenous Knowledge Systems</td>
<td>3</td>
<td>Fall</td>
<td>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. <strong>Prerequisites:</strong> Graduate standing or permission of instructor. <strong>Cross-listed with:</strong> CCS F608; RD F608; ANL F608. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
</tr>
<tr>
<td>ED F610</td>
<td>Education and Cultural Processes</td>
<td>3</td>
<td></td>
<td>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. <strong>Cross-listed with:</strong> CCS F610. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
</tr>
</tbody>
</table>
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  
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 atlase 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; or permission of instructor.  
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 or permission of instructor; 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 or permission of instructor.  
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ED F630 Curriculum Development
3 Credits
Offered Fall
Study of curriculum foundation. Examines types of curricular frameworks, including traditional and indigenous models. Current influences of district, state, national and international curriculum models are discussed. Curriculum design practice connects standards, goals and learning experiences to guide student learning. Fieldwork is required.
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 F635 Strategies for Cooperating/Mentor Teachers
3 Credits
Offered As Demand Warrants
Study of effective teaching using alternative strategies appropriate to differing goals. Consideration will also be given to teaming with and/or supervising interns as a technique for improving instruction. Course may be repeated for credit as readings and topics change.
Prerequisites: Licensed teacher employed in a school district.
Lecture + Lab + Other: 3 + 0 + 0

ED F636 Improvement of Elementary Teaching
3 Credits
Offered As Demand Warrants
Emphasis on improvement of elementary teaching through professional development in which mentor teachers read, reflect and collaborate with one another and with university faculty to develop new approaches for their own professional development as well as developing and refining strategies that contribute to the preparation of student interns who can successfully demonstrate competence in the Alaska Teacher Standards and the Alaska Standards for Culturally Responsive Schools. Course may be repeated for credit as readings and topics change.
Lecture + Lab + Other: 3 + 0 + 0

ED F640 Gender and Education
3 Credits
Offered Spring Even-numbered Years
Educational practices and processes and their relation to the changing situation of women in society. Schools will be examined as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include the social construction of gender, patterns of access and achievement, 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 F642 Portfolio Preparation: Integrating Theory and Practice
3 Credits
Offered Spring
Continued systematic collection of selected work, and final preparation and presentation of required portfolios that document and provide evidence of professional development and achievement as beginning teachers relative to Alaska Teacher Standards and Alaska Student Content Standards, integrated with the Alaska Standards for Culturally Responsive Schools. Processes and products involved in portfolio preparation serve as basis for goal setting and assessment by interns, peers, mentors and university faculty. Portfolios must provide tangible evidence of the range of knowledge, dispositions and skills that the intern possesses. Technology focus: utilization of technology to prepare portfolios. Addresses Alaska Teacher Standards.
Prerequisites: Admission to the post-baccalaureate elementary or secondary licensure program or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 3

ED F649 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. Ed. in Curriculum and Instruction option for post-baccalaureate students.
Prerequisites: Admission to K-12 Art post-baccalaureate licensure program or M.
Stacked with ED F449.
Lecture + Lab + Other: 3 + 0 + 0

ED F650 Current Topics in Educational Technology: Innovative Instruction and Leadership
3 Credits
Offered Fall As Demand Warrants
This is a content-customized course for students interested in increasing their awareness of the impact of innovative technology in the learning environment. Participants in the class study professional and personal technology based topics relevant to various career fields in education, with an emphasis on current events, emerging technologies and ethical considerations. Readings, research papers and discussions lead to the development of an instructionally oriented technology proposal that includes an implementation plan and formal presentation.
Lecture + Lab + Other: 3 + 0 + 0
ED F653 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 or permission of instructor.
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 or permission of the instructor.
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 or permission of instructor.
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 F669 Reading, Language and Culture
3 Credits
Offered Fall, As Demand Warrants
Introduction to the foundations of psycholinguistic and sociolinguistic theories as they relate to oral and written language acquisition and development. Focus on issues of language and literacy education practices in the Alaska context. Topics include bi-lingual and bi-literacy education, school and community languages and literacies, and culturally responsive pedagogy. Emphasis on teachers/students developing the skills and dispositions to become researchers of culture, language and literacy in their communities.
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 or permission of the instructor.
Lecture + Lab + Other: 3 + 0 + 0
ED F681  Placement-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 F686  Assessment and Testing in K-12 Public Schools
3 Credits
Offered Spring
A foundational knowledge of assessment in K-12 public schools, includes interpretation and analysis of multiple and varied assessments. Common national and international assessment is examined. Assessment design practice connects standards, goals and learning experiences with varied assessment to document student learning and support curricular decisions. Fieldwork is required.
Lecture + Lab + Other: 3 + 0 + 1

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; or permission of instructor.
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. Ed. degree program; completion of all required core courses; at least nine credits in the area of concentration.
Prerequisites: Acceptance into an M.
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.
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: ENGL F111X; sophomore standing; or permission of instructor.
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 or permission of instructor.
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. Completion of EDSC F205 or EDSC F415 is recommended prior to enrollment in this course.
Prerequisites: ENGL F111X; junior standing or above; or permission of instructor.
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: ENGL F111X; junior standing or above; or permission of instructor.
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: ENGL F111X; sophomore standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

EDSC F424   Culturally Responsive Small School Programs for Alaska
3 Credits
Offered Spring
Exploration of effective programs in small rural schools and in urban schools using school-within-a-school and multi-age models. Emphasis on interdisciplinary models and innovative programs with multi-cultural perspectives.
Prerequisites: Admission to the secondary post-baccalaureate licensure program or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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, diverse methodologies and teaching strategies specific to arts.
Prerequisites: Admission to Internship year or permission of instructor.
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 or permission of instructor.
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 or permission of the instructor.
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 or permission of instructor.
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 or permission of instructor.
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: ENGL F111X; junior standing or above; or permission of instructor.
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 or permission of instructor.  
Lecture + Lab + Other: 1 + 0 + 25  
EDSC F472  Secondary Teaching: School Internship II and Seminar  
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: COMM F131X or F141X; admission to the secondary post-baccalaureate licensure program or permission of instructor.  
Lecture + Lab + Other: 1 + 0 + 4-16  
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.  
Prerequisites: Admission to the Internship year or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
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 the Internship year or permission of instructor.  
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 or permission of instructor.  
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 associated laboratory experiences for teaching social studies.  
Prerequisites: Admission to the Internship year or permission of instructor.  
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 or permission of instructor.  
Stacked with EDSC F436.  
Lecture + Lab + Other: 3 + 0 + 0
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<th>Course Code</th>
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<th>Credits</th>
<th>Pre-Requisites</th>
<th>Offered Terms</th>
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<tbody>
<tr>
<td>EDSC F637</td>
<td>World Language Secondary Instruction and Assessment</td>
<td>3</td>
<td>Admission to the Internship year or permission of instructor.</td>
<td>Offered As Demand Warrants</td>
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<td>Stacked with EDSC F437.</td>
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<td>EDSC F642</td>
<td>Technology Applications in Education I</td>
<td>1</td>
<td>Admission to the Internship year or permission of instructor.</td>
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<td>EDSC F643</td>
<td>Technology Application in Education II</td>
<td>2</td>
<td>Successful completion of EDSC F642 or permission of the instructor.</td>
<td>Offered Spring</td>
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<td>Stacked with EDSC F443.</td>
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<td>EDSC F657</td>
<td>Multicultural Education and School-Community Relations</td>
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<td>Admitted to the Internship year or permission of instructor.</td>
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<td>Stacked with EDSC F457.</td>
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<td>EDSC F658</td>
<td>Classroom Organization and Management</td>
<td>3</td>
<td>Admission to the Internship year or permission of instructor.</td>
<td>Offered Fall</td>
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<td>Stacked with EDSC F458.</td>
<td>Lecture + Lab + Other: 3 + 0 + 0</td>
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**Education: Special Education (EDSE)**

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<tbody>
<tr>
<td>EDSE F316</td>
<td>Introduction to Special Education for Elementary Classroom Teachers</td>
<td>3</td>
<td>ED F201; EDSE F316, or permission of instructor.</td>
<td>Offered Fall and Spring</td>
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<td>Lecture + Lab + Other: 2.5 + 0 + 1</td>
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<tr>
<td>EDSE F320</td>
<td>Adapting and Accommodating Instructions for Students with Disabilities</td>
<td>3</td>
<td>ED F201; EDSE F316, or permission of instructor.</td>
<td>Offered Fall and Spring</td>
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<td>EDSE F422</td>
<td>Curriculum, Management and Strategies II: High Incidence</td>
<td>3</td>
<td>Stacked with EDSE F622.</td>
<td>Offered Fall and Spring</td>
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<td>Lecture + Lab + Other: 3 + 0 + 1</td>
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</tbody>
</table>
EDSE 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 PSY F448.
Stacked with EDSE F648; PSY F648.
Lecture + Lab + Other: 3 + 0 + 0

EDSE F482  Inclusive Classrooms for All Children
3 Credits
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

EDSE F605  Early Childhood Special Education
3 Credits
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

EDSE F610  Assessment of Students with Disabilities
3 Credits
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

EDSE F612  Curriculum, Management and Strategies I: Low Incidence
3 Credits
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

EDSE F622  Curriculum, Management and Strategies II: High Incidence
3 Credits
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

EDSE F624  Social/Emotional Development, Assessment and Intervention
3 Credits
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

EDSE F625  Teaching Mathematics to Special Learners
3 Credits
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

EDSE F632  Special Education Law: Principles and Practices
3 Credits
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

EDSE F633  Autism and Other Developmental Disabilities: Communication and Social Interventions
3 Credits
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
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 F448.
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

EDSE F681  Special Education Portfolio
3 Credits
Offered Fall; As Demand Warrants
Prerequisites: Successful completion of 18 credits in graduate level special education course work.
Lecture + Lab + Other: 3 + 0 + 0

EDPA F110  Introduction to Para-Professional Education
2 Credits
Offered As Demand Warrants
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; ENGL 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; ENGL 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; ENGL 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; ENGL 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

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 a 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 or Co-requisites: MATH F251X.
Lecture + Lab + Other: 2 + 3 + 0

EE F203  Electrical Engineering Fundamentals I
4 Credits
Offered Fall
Analysis of alternating-current circuits using complex notation and phasor diagrams, resonance, transformers and three-phase circuits. Introduction to network and system analysis. Prerequisite or Co-requisite: MATH F252X.
Prerequisites: MATH F251X; 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. Prerequisite or Co-requisite: MATH F253X.
Prerequisites: 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  Applied Engineering Electromagnetics
3 Credits
Offered Fall
Analysis and design of transmission lines and distributed linear circuits using impedance concepts. Development of electromagnetic field equations and their relation to circuit models. Magnetostatics and the magnetic circuit. Electromagnetic wave propagation. Application of the wave equation to engineering systems. Prerequisite or Co-requisite: MATH F302.
Prerequisites: 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 or Co-requisites: EE F311.
Lecture + Lab + Other: 0 + 3 + 0

EE F333  Physical Electronics (W)
4 Credits
Offered Fall
Basic properties of semiconductors. Principles of semiconductor devices, diodes, transistors and integrated circuits.
Prerequisites: EE F204; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
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 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). Note: EE F333 may be taken concurrently.
Prerequisites: ES F201 or CS F201; EE F204; EE F333.
Lecture + Lab + Other: 3 + 3 + 0

EE F353  Circuit Theory
3 Credits
Offered Fall
Analysis by Laplace transform, state variable, and Fourier methods, convolution, frequency selective networks, and two-port circuits. Prerequisite or Co-requisite: MATH F302.
Prerequisites: EE F304; MATH F253X.
Lecture + Lab + Other: 3 + 0 + 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 or equivalent.
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: ENGL F111X; ENGL F211X or ENGL F213X; COMM F131X or COMM F141X; EE F303; EE F334; EE F354 or permission of instructor.
Prerequisites: Senior standing.
Stacked with EE F608.
Lecture + Lab + Other: 3 + 3 + 0
EE F412  Electromagnetic Waves and Devices  
3 Credits  
Solution of Maxwell's equations for the interaction of electromagnetic waves with conducting and dielectric media. Theory and design of antennas and waveguides.  
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 Co-requisites: EE F412.  
Lecture + Lab + Other: 0 + 3 + 0  
EE F434  Instrumentation Systems  
(O, W)  
4 Credits  
Offered Spring  
Analysis and design of instrumentation systems. Static and dynamic characteristics; accuracy, noise and reliability; sensors; signal conditioning; typical measurement systems and microprocessor applications.  
Prerequisites: COMM F131X or COMM F141X; EE F334; EE F343; EE F354; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; senior standing.  
Lecture + Lab + Other: 3 + 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  
(O, 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: COMM F131X or COMM F141X; EE F343 or EE F341; EE F354; EE F443; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; 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 or equivalent.  
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: COMM F131X or COMM F141X; EE F354; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; senior standing.  
Lecture + Lab + Other: 3 + 3 + 0  
EE F471  Fundamentals of 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: ENGL F111X; ENGL F211X or ENGL F213X; COMM F131X or COMM F141X; EE F303; EE F334; EE F354 or permission of instructor; senior standing.
Stacked with EE F408.
Lecture + Lab + Other: 3 + 1 + 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 or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
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 or permission of the instructor.
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 firmware design. Includes laboratory exercises using evaluation board and a complete embedded system design project. Emphasis on robust designs, energy efficiency, and proper documentation. Stacked with EE F444
Prerequisites: Graduate standing or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 3 + 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 or equivalent.
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 or equivalent.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

EE F667  Satellite Communications
3 Credits
Offered Fall Odd-numbered Years
Satellite orbital parameters, satellite hardware, link budgets, modulations
and multiple access techniques, operational considerations, operating
and proposed satellite communication systems.
Prerequisites: EE F461; graduate standing; or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

EE F673  Modern Control Engineering
3 Credits
Offered Fall Even-numbered Years; As Demand Warrants
Introduction to state space systems in the study of dynamical systems;
brief review of modeling and basic concepts of classical control theory
and matrix algebra; stability analysis of feedback systems; design
of output and state feedback control systems; controllability and
observability of dynamical systems; state feedback; state observers;
robust control; optimal control. Analysis and design using MATLAB and
SIMULINK; demonstrations on PUMA 560 and Hardware-in-the-Loop
simulator test-beds.
Prerequisites: EE F471 or equivalent; permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

EE F675  Robot Modeling and Control
3 Credits
Offered As Demand Warrants
Introduction to basic concepts in robotics; homogeneous
transformations; Denavit-Hartenberg parameters, forward and inverse
kinematics; velocity kinematics, Jacobians; dynamics and modeling;
robot control: independent joint control, multivariable control, Lyapunov
stability, PD+, computed torque, inverse dynamics control with the use of
Matlab/Simulink, kinematics and control related demonstrations on the
PUMA 560 manipulator.
Prerequisites: EE F471, PHYS F212X or equivalent courses in automatic
control systems, and mechanics.
Recommended: EE F303 or equivalent electrical machinery courses and
some experience with MATLAB.
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; or permission of
instructor.
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 which can be taken concurrently
with this class, or permission of instructor.
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 or permission of instructor.  
Recommended: DEVM F105.  
Lecture + Lab + Other: 3 + 0 + 0

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  
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. As Demand Warrants  
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. Also offered as pass/fail as EMS F152P.  
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
Prerequisites: situations.

Prerequisites: air transport; effects of aeromedical transport on specific medical and escort; aircraft and equipment considerations; legal aspects of fall semester. Interns will perform all aspects of emergency care for an individual.

Prerequisites: pressure and atmosphere; physical effects of flight on the patient and observe skills performed by Advanced Care Providers. Designed for developed equipment and its use, changes in state licensure or other medical-legal requirements. Also Offered Pass/Fail as EMS F172P.

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; permission of instructor.

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 or permission of instructor.

Lecture + Lab + Other: 1 + 0 + 0

EMS F181  Clinical Rotation I
4 Credits
Offered, 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 F195  Special Topics
1-6 Credits
Offered Fall, As Demand Warrants

Lecture + Lab + Other: 0 + 0 + 0

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 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; EMS F277.
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 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. Prerequisite or Co-requisite: MATH F151X; or enrollment in 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; 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. Prerequisite or Co-requisites: MATH F252X; or PHYS F211X.
Prerequisites: ES F101 or GE F101 or 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. Prerequisite or Co-requisites: MATH F252X; or enrollment in MATH F251X.
Prerequisites: ES F101.
Lecture + Lab + Other: 3 + 0 + 0

ES F210  Dynamics  
3 Credits  
Motion of particles, kinematics and kinetics of plane motion of rigid bodies, and principles of work and energy, impulse and momentum. Vector methods used where appropriate.
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: ES F201; Prerequisite or Co-requisites: MATH F302.
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. Prerequisite: MATH F252X; or permission of instructor.
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  Basic Thermodynamics  
3 Credits  
Thermodynamic systems, properties, processes and cycles. Fundamental principles of thermodynamics (first and second laws), and elementary applications.
Prerequisites: MATH F252X; PHYS F211X.
Lecture + Lab + Other: 3 + 0 + 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.
Lecture + Lab + Other: 3 + 0 + 0

ESM F450  Economic Analysis and Operations  
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: ENGL F111X; ENGL F211X or ENGL F213X; CS F201 or CS F201; senior standing in engineering; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ESM F492  Engineering Mgt Seminar  
1 Credit  
Lecture + Lab + Other: 0 + 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 or permission of instructor.  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

ESM F692  Engineering Mgt Seminar  
1 Credit  
Lecture + Lab + Other: 0 + 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  

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 F111X  Introduction to Academic Writing  
3 Credits  
Instruction and practice in written inquiry and critical reading. Introduction to writing as a way of developing, exploring and testing ideas. Concentration on research methods and techniques.  
Prerequisites: Placement into ENGL F111X.  
Lecture + Lab + Other: 3 + 0 + 0
ENGL F192 Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

ENGL F200X World Literature (h)
3 Credits
Introduction to 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: ENGL F111X or placement in ENGL F211X/ENGL F213X; sophomore standing; or permission of instructor.
Cross-listed with FL F200X.
Attributes: UAF Core World Literatures, UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0

ENGL F211X Academic Writing about Literature
3 Credits
Instruction in writing through close analysis of literature. Research paper required. Strongly recommended for English and other humanities majors.
Prerequisites: ENGL F111X or its equivalent.
Recommended: Sophomore standing.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F212 Business, Grant and Report Writing
3 Credits
Offered As Demand Warrants
Forms and techniques of business, grant, and report writing. (Special emphasis may be placed on one or another of these topics in a given semester.) Does not fulfill the second half of the baccalaureate requirements in written communication.
Prerequisites: ENGL F111X.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F213X Academic Writing about the Social and Natural Sciences
3 Credits
Instruction in critical reading and argumentative writing by reading and responding to essays from the social and natural sciences. Concentration on the research methods and techniques necessary to create an extended written argument.
Prerequisites: ENGL F111X or equivalent.
Recommended: Sophomore standing.
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: ENGL F111X.
Cross-listed with FLPA F217X; JRN 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: ENGL F111X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F219 Aleut Narrative Art (a)
3 Credits
Offered As Demand Warrants
Introduction to and survey of the oral and written literature of the Unangan, the Aleut people. All works in English translation, although some supplementary materials in the Aleut language (eastern and western dialects). Offered at the Interior Alaska campus.
Prerequisites: ENGL F111X or permission of instructor.
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: ENGL F111X; or permission of instructor.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 3 + 0 + 0
ENGL F280  Introduction to Colonial and Postcolonial Literature  (h)
3 Credits
Offered Fall Even-numbered Years
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: ENGL F211X or ENGL F213X.
Recommended: ENGL F200X.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F290  Summer Reading Program (Honors)  (h)
2 Credits
Offered Fall
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.
Prerequisites: ENGL F111X; enrollment in the Honors Program; or permission of instructor.
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: ENGL F111X or permission of instructor.
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, Marguerite de Navarre, Calderon della Barca and Cervantes.
Prerequisites: ENGL F111X or permission of instructor.
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: ENGL F111X or permission of instructor.
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: ENGL F111X or permission of instructor.
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: ENGL F111X or permission of instructor.
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: ENGL F111X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F310  Literary Criticism  (h)
3 Credits
Offered As Demand Warrants
History and principles of literary criticism, from earliest days to present.
Prerequisites: ENGL F111X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F313  Writing Nonfiction Prose  (W, h)
3 Credits
Offered As Demand Warrants
Instruction in writing for students who wish to develop proficiency in organizing and composing essays on factual material. Readings and research paper required. Course does not fulfill the second half of the general degree requirement in written communication.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.
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: ENGL F111X or permission of instructor.
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: ENGL F111X or permission of instructor.
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: ENGL F111X.  
Recommended: ENGL F211X.  
Cross-listed with WGS F333.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F340  Contemporary Native American Literature  (h)  
3 Credits  
Offered Fall  
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: ENGL F111X or permission of instructor.  
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: ENGL F111X or permission of instructor.  
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 surround these texts. Readings selected from all of North America with an emphasis on Alaska Natives.  
Prerequisites: ENGL F111X.  
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  
Prerequisites: ENGL F111X or permission of instructor.  
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: ENGL F111X or permission of instructor.  
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: ENGL F111X; ENGL F211X or ENGL F213X; ENGL F270X; or permission of instructor.  
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: ENGL F111X; ENGL F211X or ENGL F213X; ENGL F270X; or permission of instructor.  
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: ENGL F111X; ENGL F211X or ENGL F213X; ENGL F270X; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

ENGL F380  Topics in Colonial and Postcolonial Literature  (h)  
3 Credits  
Offered Spring Odd-numbered Years  
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 F410 Studies in American Literature to 1900 (O/2, W, h) 3 Credits
Offered Every Third Spring
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: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F414 Research Writing (W, h) 3 Credits
Offered Fall
Practice in reporting primary and secondary research in the forms and styles appropriate to the student's field. Preference given to seniors.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or their equivalent or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X or their equivalent or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
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/FLPA F217X; ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with FLPA F427.
Lecture + Lab + Other: 2 + 2 + 0

ENGL F430 Women, Gender and Sexuality in Language, Literature and Culture 3 Credits
Offered Fall
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: ENGL F211X or ENGL F213X; or permission of instructor.
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: ENGL F211X or ENGL F213X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F440 Studies in 20th- and 21st-Century British Literature (O/2, W, 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/FLPA F217X; ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with FLPA F427.
Lecture + Lab + Other: 2 + 2 + 0

ENGL F450 Shakespeare: Comedies and Nondramatic Poetry (O/2, W, h) 3 Credits
Offered Spring
Major comedies and non-dramatic poems, including significant criticism.
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
Recommended: ENGL F308 desirable but not required.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F470 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/FLPA F217X; ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with FLPA F427.
Lecture + Lab + Other: 2 + 2 + 0

ENGL F480 Women, Gender and Sexuality in Language, Literature and Culture 3 Credits
Offered Spring
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: ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with WGS F433.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F490 Shakespeare: Comedies and Nondramatic Poetry (O/2, W, h) 3 Credits
Offered Spring
Major comedies and non-dramatic poems, including significant criticism.
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
Recommended: ENGL F308 desirable but not required.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F449  Northern and Environmental Literature  (h, a)
3 Credits
Intensive study of particular aspects of Alaska and circumpolar writing, ecocritical theory and the literature of environmental studies.
Prerequisites: ENGL F211X; or ENGL F213X; or permission of instructor.
Cross-listed with NORS 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: ENGL F211X or ENGL F213X or permission of instructor.
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 Fall
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: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X or permission of instructor.
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: ENGL F211X or ENGL F213X or permission of instructor.
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: ENGL F211X or ENGL F213X or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; ENGL F375, ENGL F376 or ENGL F377; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ENGL F471  Undergraduate Writers' Workshop  (W, h)
3 Credits
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: ENGL F111X; ENGL F211X or ENGL F213X; ENGL F270X; ENGL F375, ENGL F376 or ENGL F377; or permission of instructor.
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: ENGL F211X or ENGL F213X or permission of instructor.
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: ENGL F211X or ENGL F213X or permission of instructor.
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: ENGL F211X or ENGL F213X or permission of instructor.
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: ENGL F111X, ENGL F211X or ENGL F213X, or permission
of instructor.
Cross-listed with FLPA F488.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F492  Senior Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0
ENGL F492P  Senior Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0
ENGL F601  Theory, Criticism and Methods
3 Credits
Offered Spring
A study of the theoretical debates that inform contemporary criticism,
and of the methods for conducting and evaluating research.
Prerequisites: Graduate standing or permission of instructor.
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.
Prerequisites: Graduate standing or permission of instructor.
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.
Prerequisites: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F605  Studies in British Literature: Restoration and 18th Century
3 Credits
Offered Fall Odd-numbered Years
Variable subject matter in significant topics in British literature of the
Restoration period and the 18th century.
Prerequisites: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F606  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.
Prerequisites: Graduate standing or permission of instructor.
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.
Prerequisites: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F609  Early and Romantic American Literature
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F611  American Realism and Modernism
3 Credits
Offered Spring Even-numbered Years
Variable subject matter in significant topics in American literature of the
late 19th and early 20th centuries.
Prerequisites: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
ENGL F612  Twentieth-Century American Literature
3 Credits
Offered Spring Even-numbered Years
Variable subject matter in American Literature of the 20th-century.
Prerequisites: Graduate standing or permission of instructor.
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.
Prerequisites: Graduate standing or permission of instructor.
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.
Prerequisites: Graduate standing or permission of instructor.
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.
Prerequisites: Graduate standing or permission of instructor.
Cross-listed with NORS 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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 F693  Special Topics
1-6 Credits
Offered As Demand Warrants
ENGL F698  Non-Thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

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 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 give formal presentations.  
**Prerequisites:** A minimum score of 50 on the TOEFL Internet-based test (iBT) or permission of the instructor.  
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 give formal presentations.  
**Prerequisites:** A minimum score of 50 on the TOEFL Internet-based test (iBT) or permission of the instructor.  
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 give formal presentations.  
**Prerequisites:** A minimum score of 60 on the TOEFL Internet-based test (iBT) or permission of the instructor.  
Lecture + Lab + Other: 4 + 0 + 0

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**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; or permission of instructor.  
**Recommended:** CE F341.  
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. SCL#  
**Prerequisites:** CHEM F106X; ES F346 or equivalent; MATH F252X; PHYS F211X.  
Cross-listed with ME F458.  
Stacked with ENVE F658; ME F658.  
Lecture + Lab + Other: 3 + 0 + 0

**ENVE F541  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 or permission of instructor.  
Cross-listed with CHEM F605.  
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:** CHEM 106X or equivalent.  
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 106X or equivalent.  
**Recommended:** MATH F252X; graduate standing; or permission of instructor.  
Stacked with 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.
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 or equivalent; MATH F252X; PHYS F211X; graduate standing.
Cross-listed with ME F658.
Stacked with ENVE F458, ME F458.
Lecture + Lab + Other: 3 + 0 + 0
ENVE F697 Individual Study
1-6 Credits
Lecture + Lab + Other: 0 + 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
ENVI F101 Introduction to Environmental Science  
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 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; or permission of instructor.
Lecture + Lab + Other: 0 + 0 + 3.1-15.4

ENVI F193  Introduction to Environmental Science
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

ENVI F193P  Introduction to Environmental Science
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

ENVI F195P  Introduction to Environmental Science
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

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: DEV F105 or CTT F106 or TTCH F131 or permission of
instructor.
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; ENGL F111X; 100-level science class; or
permission of instructor.
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; or permission of instructor.
Recommended: ENVI F101 or NRM F101; ENVI F110; ENVI F260; a lab-
based F100 level science course; or permission of instructor.
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; or permission of instructor.
Recommended: ENVI F101 or NRM F101; ENVI F110; ENVI F260.
Lecture + Lab + Other: 1.5 + 0 + 1.5

ENVI F293  Introduction to Environmental Science
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

ENVI F293P  Introduction to Environmental Science
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

ENVI F293P  Introduction to Environmental Science
1-9 Credits
Lecture + Lab + Other: 1-9 + 0 + 0

Eskimo (ESK)

ESK 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 non-speakers. 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

ESK 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 non-speakers. 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
### ESK 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.  
**Prerequisites:** Permission of instructor.  
**Lecture + Lab + Other:** 1-3 + 0 + 0

### ESK 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:** ESK F103 or permission of instructor.  
**Lecture + Lab + Other:** 1-3 + 0 + 0

### ESK F106  
**Introduction to Inupiaq (a)**
1 Credit  
Enter-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

### ESK 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

### ESK 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 non-speakers. 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

### ESK 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 non-speakers. 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

### ESK 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

### ESK 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:** ESK F115.  
**Lecture + Lab + Other:** 1-3 + 0 + 0

### ESK F116P  
**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:** ESK F115.  
**Lecture + Lab + Other:** 1-3 + 0 + 0

### ESK 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

### ESK 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 hr 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

### ESK F122  
**Elementary Central Yup'ik Apprenticeship II (a)**
4 Credits  
Offered As Demand Warrants  
Continuation of ESK 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:** ESK F121 or formal assessment indicating equivalent speaking and listening skills.  
**Lecture + Lab + Other:** 1 + 10 + 0
ESK F123 Elementary Central Yup’ik Apprenticeship III (a) 4 Credits
Offered As Demand Warrants
Continuation of ESK 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: ESK F122 or formal assessment indicating equivalent speaking and listening skills.
Lecture + Lab + Other: 1 + 10 + 0

ESK 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: ESK F103 or ESK F122 or basic conversational Yup’ik skills.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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: ESK F130; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESK F155 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

ESK 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

ESK F158 Siberian Yupik Orthography (a) 1-3 Credits
Offered As Demand Warrants
Introduction to the standard writing system (orthography) of Siberian Yupik. Students learn the skills of spelling, reading and writing words in Siberian Yupik, which are the fundamentals of basic literacy. Northwest Campus only.
Prerequisites: Ability to speak Siberian Yupik or permission of instructor.
Lecture + Lab + Other: 1-3 + 0 + 0

ESK F201 Intermediate Central Yup’ik (h, a) 3 Credits
Offered Fall
Continuation of ESK F101X and ESK F102X. Increasing emphasis on speaking, reading and writing.
Prerequisites: ESK F102X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESK F202 Intermediate Central Yup’ik (h, a) 3 Credits
Offered Spring
Continuation of ESK F101X and ESK F102X. Increasing emphasis on speaking, reading and writing.
Prerequisites: ESK F102X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESK F203 Conversational Central Yup’ik III (h, a) 3 Credits
Offered Fall
A continuation of ESK F103 and ESK F104. Kuskokwim campus only.
Prerequisites: ESK F104 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESK F204 Conversational Central Yup’ik IV (h, a) 3 Credits
Offered Spring
Continuation of ESK F203. Development of proficiency in the Central Yup’ik language, vocabulary for everyday situations, reading and writing.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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. Each potential student must be evaluated for language capabilities.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESK F206 Regaining Fluency in Yup’ik II (h, a) 3 Credits
Offered Spring
Continuation of ESK F205. Speaking skills and fluency for those with some background in the language. Each potential student must be evaluated for language capabilities.
Prerequisites: ESK F205 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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: ESK F109.
Lecture + Lab + Other: 3 + 0 + 0
ESK F211 Intermediate Inupiaq (h, a) 3 Credits
Offered Fall
Continuation of ESK F111X and ESK F112X, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary.
Prerequisites: ESK F112X.
Lecture + Lab + Other: 3 + 0 + 0

ESK F212 Intermediate Inupiaq (h, a) 3 Credits
Offered Spring
Continuation of ESK F211, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary.
Prerequisites: ESK F211.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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: ESK F118 or equivalent.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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: ESK F213 or formal assessment indicating equivalent speaking and listening skills.
Lecture + Lab + Other: 1 + 10 + 0

ESK F222 Intermediate Central Yup'ik Apprenticeship II (a) 3 Credits
Offered As Demand Warrants
Continuation of ESK 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: ESK F221 or formal assessment indicating equivalent speaking and listening skills.
Lecture + Lab + Other: 1 + 10 + 0

ESK F223 Intermediate Central Yup'ik Apprenticeship III (a) 3 Credits
Offered As Demand Warrants
Continuation of ESK 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: ESK F222 or formal assessment indicating equivalent speaking and listening skills.
Lecture + Lab + Other: 1 + 10 + 0

ESK 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; permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

ESK F231 Introduction to Interpreting and Translating II (h, a) 3 Credits
Offered As Demand Warrants
Continuation of ESK F230.
Prerequisites: ESK F230.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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: ESK F130; ESK F204 or ESK F222.
Lecture + Lab + Other: 3 + 0 + 0

ESK F255 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: ESK F208 or equivalent reading and writing skills.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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: ESK F208 or equivalent reading and writing skills.
Lecture + Lab + Other: 3 + 0 + 0

ESK 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
ESK 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  
ESK F301  Advanced Central Yup’ik (h, a)  3 Credits  
Offered Fall  
Continuation of ESK F201 and F202. Completes the basic study of the Central Yup’ik grammar.  
Prerequisites: ESK F101X; ESK F102X; ESK F201; ESK F202; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
ESK F330  Yup’ik Literature/Yupiit Quliraitnek Igaryaraq (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’aallaat qulirat, qanruyutet/alerquet. 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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; ESK F208; ESK F240.  
Lecture + Lab + Other: 3 + 0 + 0  
ESK F375  Yup’ik Philosophy/Umyuarteqaraq (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: COMM F131X or COMM F141X; ESK F240.  
Lecture + Lab + Other: 3 + 0 + 0  
ESK 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: ESK F101X; ESK F102X; ESK F201; ESK F202; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
ESK F417  Advanced Inupiaq (h, a)  3 Credits  
Offered Spring  
Advanced study in Inupiaq Eskimo. Continuation of ESK F212.  
Prerequisites: ESK F111X; ESK F112X; ESK F211; ESK F212; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

ESK 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: ENGL F111X; ENGL F211X or ENGL F213X; ESK F330; senior standing; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

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 F195  Special Topics  1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0  

EBOT F195P  Special Topics  1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0  

EBOT F200  Seminar in Ethnobotany (a)  1 Credit  
Offered Spring Odd-numbered Years  
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; or permission of instructor.  
Lecture + Lab + Other: 1 + 0 + 0  

EBOT F210  Ethical Wildcrafting (a)  1 Credit  
Offered FallPrerequisites: EBOT F100; or permission of instructor  
Provides an understanding of the industry of wildcrafting: the gathering, harvesting, processing and in some cases, marketing of nontimber 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.  
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 F393  Special Topics  
1-9 Credits  
Lecture + Lab + Other: 1-9 + 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 major program in Theatre.  
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 JRN 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
Cross-listed with

Upon completion.

Understanding of basic contemporary dance principles and interpretation conditioning, and dancing. Students will be expected to demonstrate an understanding of contemporary dance, the course will be a combination of stretching, presented in class.

Cross-listed with

Cross-listed with

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

Offered As Demand Warrants

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

Offered As Demand Warrants

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

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

Cross-listed with

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

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

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

For Native and non-Native students with no prior acting or theatre experience. Placement in ENGL F111X or higher.

Placement in ENGL F111X or higher.
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: ENGL F111X or concurrent enrollment; or permission of instructor.
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: ENGL F111X.
Cross-listed with ENGL F217X; JRN F217X.
Attributes: UAF GER Arts Req
Lecture + Lab + Other: 2 + 2 + 0

FLPA F221  Acting II  (h)
3 Credits
Continued development of physical, emotional and imaginative awareness. This is a scene study class with emphasis on naturalistic modern material.
Prerequisites: FLPA F121; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F231  Previsualization and Preproduction for Digital Cinema  (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 majors are encouraged to fulfill this requirement by their junior year.
Lecture + Lab + Other: 2 + 5 + 0

FLPA F245  Stage Management  (h)
3 Credits
This course will expose students to the multi-faceted job of the stage manager in theatrical productions with an emphasis on his/her role in the collaborative process. Students will learn to perform the duties, responsibilities and procedures of stage managers from pre- to post-production, as well as industry-standard vocabulary, proficiently. Students are expected to participate in, and will be evaluated on, classroom discussions and activities.
Lecture + Lab + Other: 3 + 0 + 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.
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 JRN F251.
Lecture + Lab + Other: 2 + 5 + 0

FLPA F254  Costume Construction  (h)
3 Credits
Offered Fall
Introduction to basic methods of construction used by professional shops and costume houses to create theatrical costumes. Students will complete several projects, covering hand and machine sewing, cutting, fabric identification, simple alterations and costume crafts. Class also includes lectures on shop organization, jobs and policies.
Lecture + Lab + Other: 2 + 3 + 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 JRN 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 JRN 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
Film 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. Film 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
Theatre majors are required to participate in auditions and/or portfolio reviews every semester. Theatre majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all theatre department "town" meetings.
Lecture + Lab + Other: 0 + 0 + 0

FLPA F291  Audition or Portfolio Review Participation II
0 Credit
Theatre majors are required to participate in auditions and/or portfolio reviews every semester. Theatre majors are also expected to attend all Theatre UAF productions (tickets are provided free) and to attend all theatre department "town" meetings.
Lecture + Lab + Other: 0 + 0 + 0

FLPA F298  Undergraduate Research
1-3 Credits
Lecture + Lab + Other: 0 + 0 + 1-3

FLPA F299  Undergraduate Thesis
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 JRN 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. Recommended prerequisite: FLPA F221.
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; or permission of instructor.
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 period scene study.
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 F291; FLPA F271; FLPA/JRN F290; or permission of instructor.
Recommended: FLPA F121; FLPA/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 in this writing intensive course.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 2 + 2 + 0

FLPA F343  Scene Design (h)
3 Credits
Principles and techniques of theatrical scene design. Includes designing projects directed at solving particular scenic problems or in a specific scenic style with specific physical limitations. Students will spend approximately $40 for materials.
Prerequisites: FLPA F241; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 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: COMM F131X or COMM 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, illusions 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 F354  Intermediate Costume Construction  (h)
3 Credits
This course is intended to improve students' sewing and patterning skills through a series of exercises and advanced projects. Students will be asked to construct costumes and mockups, create and alter basic patterns, manipulate sloper patterns and alter existing costumes. The final project will be designed and constructed by the student.
Prerequisites: FLPA F254; or demonstrated sewing experience and instructor permission.
Recommended: Theatre Practicum or Work Study in the Costume Shop.
Lecture + Lab + Other: 2 + 3 + 0

FLPA F355  History of Fashion and Dress  (s)
3 Credits
Offered As Demand Warrants
Social history of costume in Western civilization, from Ancient Greece to the present time. Includes instruction in the methods of research used to find visual source material and assignments that exercise these research skills.
Recommended: HIST F101 or HIST F102X.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F356  Costume Design  (h)
3 Credits
Offered Fall Odd-numbered Years
Through a series of projects, play readings and drawing exercises, students learn how to successfully analyze text, communicate production concepts and express costume ideas using sketching, rendering and collage. Projects also introduce students to the practical skills needed to realize a costume design within the limits of a theatre's resources and needs.
Prerequisites: ART F104 or ART F105; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F358  Lights, Camera, Audio!  (O, h)
3 Credits
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.
Spring Even-numbered Years
Prerequisites: FLPA F271 or JRN F280.
Lecture + Lab + Other: 3 + 0 + 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/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
An in-depth study of 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: ENGL F111X; junior standing; or permission of instructor.
Cross-listed with HIST F368; JRN F368.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F361  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 JRN F204 or FLPA F260 or JRN F290; COMM F131X or COMM F141X.
Cross-listed with ART F371; JRN F371.
Lecture + Lab + Other: 1 + 4 + 0

FLPA F381  Alaska Natives in Film  (W, h, a)
3 Credits
Offered Spring Odd-numbered Years
Analysis of the portrayal of Alaska's Inupiaq and Yup'ik peoples (with some on Canada's Inuit) through select films and readings. Learning to critically analyze films and understanding how various film techniques are accomplished while focusing on feature films' treatment and use of Northern peoples in film, as well as looking at the social impact of such films.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.
Recommended: ART/MUS/FLPA F200X.
Cross-listed with ANS F381.
Lecture + Lab + Other: 1.5 + 2-4 + 0
FLPA F389  Reel Workshop/Review
0 Credit
Offered Spring
Film 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. Film 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 F290; or permission of instructor.
Lecture + Lab + Other: 1-2 + 0 + 4-10

FLPA F411  Theatre History (W, h)
3 Credits
Students will explore the ways in which theatre developed through history by studying performance, practice and literature from Ancient Greece to the present. Course focuses on the setting and manner in which plays were produced, historical context, and popular themes.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

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: ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F416  Performance Studies Abroad (W, h)
6 Credits
Intensive course for actors, directors, designers, technicians and playwrights interested in script development/training with the participation of international theatre professionals. Develop new scripts and performances in a multicultural environment under the supervision of a theatre faculty member. Previous faculty and student work abroad includes: Russia, Zambia, South Africa and Scandinavia. Course requirements vary according to the project.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
Stacked with NORS F616.
Lecture + Lab + Other: 3 + 9 + 0

FLPA F417  Internship in Theatre Practice
1-6 Credits
Offered As Demand Warrants
Supervised practical work experience to provide application of course work in a professional, semi-professional or community theatre environment. Internships can be in direction, acting, design, management and technical theatre. Internships have included Perseverance Theatre, Fairbanks Shakespeare Theatre, Fairbanks Drama Association, and Out North Theatre. Course may be repeated twice for a maximum of 12 credits. Note: Internship must be arranged in coordination with advisor, student and host institution.
Prerequisites: Completed at least 18 FLPA credits; upper-division standing; permission of instructor.
Recommended: Previous FLPA credits should be in the student's concentration area: direction, design, etc.
Lecture + Lab + Other: 0 + 0 + 0

FLPA F418  Internship in Film Production (h)
1-6 Credits
Offered As Demand Warrants
This course offers students unique opportunities to work in the professional film industry. Professional internships require a faculty advisor as well as professional evaluation for the supervised work. Course can be repeated twice for a maximum of 12 credits. Variable Credit, 40 hours of internship is equal to 1 credit.
Prerequisites: 18 credits in upper division film classes; or permission of instructor.
Recommended: FLPA F271; FLPA F245.
Lecture + Lab + Other: 0 + 0 + 1-6

FLPA F423  Acting IV: Scene Study (h)
3 Credits
Offered Alternate Years
This course will focus on the refinement of physical, vocal, emotional, and imaginative awareness. This is a scene study class which will include audition technique, acting for the camera skills, and preparation for the professional world of acting.
Prerequisites: FLPA F121; FLPA F320; FLPA F321; or permission of instructor.
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/FLPA F217X; ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with ENGL F427.
Lecture + Lab + Other: 2 + 2 + 0

FLPA F430  The Collaborative Process  (h)
3 Credits
Offered Alternate Years
Interactive role-based course providing practice and theory in the process of theatrical collaboration. Hierarchical and consensus-based models for artistic collaboration will be introduced, discussed and practiced in light of artistic concept, resource allocation, production budgets and individual personalities and temperaments inherent in the field of theatrical production. This course serves as a capstone alternative to FLPA F499 for theatre majors in the performance and design/tech concentrations.
Prerequisites: FLPA F332; junior or senior standing.
Lecture + Lab + Other: 3 + 0 + 0

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/ART F231; FLPA F271; FLPA F260 or JRN F290; FLPA F331.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F432  Stage Directing II  (h)
3 Credits
Offered As Demand Warrants
In seminar and practicum form, the practice, discussion and analysis of the myriad responsibilities of the Stage Director. Aspects of Stage Direction that can be practiced within a class context will be given a practical frame for experimental learning. Other aspects will either be simulated or engaged in theoretically. Business practices and ethics will be addressed. An attempt will be made to accommodate the specific aesthetic and artistic goals of the participating students.
Prerequisites: FLPA F332 and at least one of the following: FLPA F321, FLPA F343, FLPA F347, FLPA F351 or FLPA F356.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F433  Studies in French and European Cinema  (h)
3 Credits
Offered Spring or Summer Odd-Numbered Years
The course discusses the evolution of French and European cinema in historical and artistic contents.
Prerequisites: ENGL/FLPA F217X; ENGL F211X or ENGL F213X; FREN F301 or FREN F302; or permission of instructor.
Crosslisted with FREN F433.
Lecture + Lab + Other: 2 + 2 + 0

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; or permission of instructor.
Lecture + Lab + Other: 2 + 2 + 0

FLPA F456  Advanced Topics in Costume Design and Construction  (h)
3 Credits
Rotating thematic topics in advanced methods and materials used in the design and construction of costumes for the theatre. Topics may include projects in design, advanced sewing and pattern drafting, millinery, masks, corsetry, or painting and dyeing, as demand warrants. May be repeated twice for credit.
Prerequisites: FLPA F254; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

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 JRN F290; FLPA F271 or FLPA/JRN F280; video editing experience; or permission of instructor.
Cross-listed with JRN F458.
Lecture + Lab + Other: 3 + 0 + 0

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.Cross-listed: ANTH F460; ART F460.
Prerequisites: Junior, senior or graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FLPA F470  Advanced Film and Video Directing  (h)
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
FLPA 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/FLPA F231; ART F371/FLPA F371 or equivalent; COMM F131X or COMM F141X.  
Cross-listed with ART F472; JRN F472.  
Lecture + Lab + Other: 1 + 4 + 0  
FLPA 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 JRN F472 or FLPA F472 or equivalent.  
Cross-listed with ART F475.  
Lecture + Lab + Other: 1 + 4 + 0  
FLPA 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 or permission of instructor.  
Cross-listed with JRN F480.  
Lecture + Lab + Other: 3 + 0 + 0  
FLPA F481  Advanced Topics in Film or Stage Production  
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 or FLPA F248; or permission of instructor.  
Recommended: FLPA F260 or FLPA F121.  
Lecture + Lab + Other: 2 + 2 + 0  
FLPA F482  Dance Performance  (h)  
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  
FLPA 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.  
Prerequisites: Junior standing, or permission of instructor.  
Cross-listed with RUSS F484.  
Lecture + Lab + Other: 3 + 0 + 0  
FLPA 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: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
Cross-listed with ENGL F488.  
Lecture + Lab + Other: 3 + 0 + 0  
FLPA F489  Reel Workshop/Review  
0 Credit  
Offered Spring  
Film 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. Film majors are also expected to attend all department "Town Hall" and safety meetings.  
Prerequisites: FLPA F389.  
Lecture + Lab + Other: 0.5 + 0.5 + 0  
FLPA F498  Undergraduate Research  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 1-6  
FLPA F499  Thesis Project  
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
Fire Science (FIRE)

FIRE F101 Principles of Emergency Services
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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. Also Offered Pass/Fail as FIRE F117P.
Prerequisites: EMS F170, or permission of instructor.
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 or permission of instructor.
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 Fall, 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 S-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: I-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; or permission of instructor.
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 or instructor permission.
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 or instructor permission.
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; or permission of instructor.  
**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 or permission of instructor.  
**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 or instructor permission.  
**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-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 or permission of instructor.  
**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 or instructor permission.  
**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 F151 or instructor permission.  
**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; or permission of instructor.  
**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) or permission of instructor.
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).
Prerequisites: FIRE F205 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 1 + 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; FIRE F206; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 2 + 2 + 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 F216P  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 of methods of students and instruction.
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; or permission of instructor.
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
FIRE F220  Emergency Services Safety, Health and Survival  
3 Credits  
Offered Fall  
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  

FIRE F232  Firefighter II  
3 Credits  
Offered Summer, As Demand Warrants  
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; or 
permission of instructor.  
**Lecture + Lab + Other:** 2 + 2 + 0  

FIRE F244  Firefighter Internship, Series 4  
1 Credit  
Offered Fall  
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  

FIRE F246  Firefighter Internship, Series 5  
1 Credit  
Offered Spring  
Practical experience in fire operations and training by arrangement 
through local fire departments.  
**Prerequisites:** FIRE F244.  
**Lecture + Lab + Other:** 0 + 2 + 0  

FIRE F248  Firefighter Internship, Series 6  
1 Credit  
Offered Summer, As Demand Warrants  
Practical experience in fire operations and training by arrangement 
through local fire departments.  
**Prerequisites:** FIRE F246.  
**Lecture + Lab + Other:** 0 + 2 + 0  

FIRE F251  Wildland Firefighter IV  
3 Credits  
Offered Spring  
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 
Wildfire Coordinating Group (NWCG) courses: S-200 Initial Attack Incident 
Commander; S-230 Crew Boss (Single Resource).  
**Prerequisites:** FIRE F151; FIRE F153 and FIRE F155 or permission of the 
instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0  

FIRE F252  Wildland Fire Prevention I  
3 Credits  
Offered Spring Even-numbered Years  
Designed to enhance the basic skill and knowledge of personnel assigned 
responsibilities for wildfire prevention. Additionally, this course will teach 
sound wildland fire observations 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 Wildlife Coordinating Group (NWCG) courses: P-101 
Fire Prevention Education I; FI-110 Wildland Fire Observation and Origin 
Protection.  
**Prerequisites:** FIRE F151 or instructor permission.  
**Lecture + Lab + Other:** 3 + 0 + 0  

FIRE F253  Wildland Fire Investigation I  
3 Credits  
Offered As Demand Warrants  
Consistent fundamentals and technical knowledge base needed for the 
wildland fire origin and cause determination investigator (INVF). 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 Origin and Cause Determination.  
**Prerequisites:** FIRE F151; FIRE F155 and FIRE F252 or permission of the 
instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0  

FIRE F254  Incident Finance and Administration  
1.5 Credits  
Offered Fall  
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
FIRE F254P  Wildland Fire Business Management
3 Credits
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 or instructor permission.
Lecture + Lab + Other: 3 + 0 + 0

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 or permission of the instructor.
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; or permission of instructor.
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 or permission of the instructor.
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; or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
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 or permission of the instructor.
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 or permission of the instructor.
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 or permission of the instructor.
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.Cross-listed with FYE F100
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 ENGL 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
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 or permission of instructor.
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: BIOL F116X and FISH F101; or permission of instructor
Cross-listed with BIOL F288.
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
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

FISH F301  Biology of Fishes
4 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 or equivalent; junior or senior standing.
Recommended: BIOL F317.
Cross-listed with BIOL F301.
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 F101; FISH F288; STAT F200X; or permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

FISH F336  Introduction to Aquaculture  (a)
3 Credits
Offered Spring Odd-numbered Years
This course is taught in Juneau. 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.
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.
FISH F261; or permission of instructor.
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, ethnography, property theory, and environmental justice.
FISH F611
Prerequisites: COMM F131X or F141X; ENGL F211X or F213X; F200-level course in cultural anthropology, human geography, sociology, or political science; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FISH F412  Human-Environment Research Methods
3 Credits
Offered Fall
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 F613
FISH F412.
Prerequisites: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X; upper level standing; or permission of instructor.
Cross-listed with ANTH F412.
Lecture + Lab + Other: 3 + 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; or permission of instructor.
Lecture + Lab + Other: 13.3 + 20 + 0
FISH 421  Fish Ecology
4 Credits
Offered Spring Even-numbered Years
This course is taught in Juneau.
Review and analysis of the major quantitative techniques available for assessing and predicting the status of fish populations. Demonstration and use of field and laboratory techniques and model verification; examples and case histories.
Prerequisites: STAT F200X [STAT S273-J].
Recommended: FISH F418.
Lecture + Lab + Other: 4 + 0 + 0

FISH 425  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; or permission of instructor.
Stacked with FISH F650.
Lecture + Lab + Other: 3 + 0 + 0

FISH 426  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 coursework. 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/BIOL F427; or permission of instructor.
Recommended: FISH F425; FISH F427.
Stacked with FISH F626.
Lecture + Lab + Other: 3 + 0 + 0

FISH 427  Ichthyology
(n)
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 F116.
Cross-listed with BIOL F427.
Lecture + Lab + Other: 3 + 3 + 0

FISH 428  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 or BIOL F310 or FISH/BIOL F427; or permission of the instructor.
Stacked with FISH F628.
Lecture + Lab + Other: 3 + 0 + 0

FISH 433  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: FISH/BIOL F427 or permission of instructor.
Stacked with FISH F633.
Lecture + Lab + Other: 3 + 0 + 0

FISH 440  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 450  Practicum in Fisheries: Fisheries Observer Program
(a)
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 or permission of instructor.
Lecture + Lab + Other: 0 + 1-12 + 0
### Prerequisites:

A combination of traditional and industrial training opportunities. Assigned required readings and discussion of appropriate topics in food science and technology. Information applied during hands-on experience in a food processing plant. Discussion includes fundamental information and solutions to industrial problems. Faculty mentor assigned to each intern. Required written evaluation of internship. 30 hours in-plant work experience for 12-24 weeks. Note: Course offered only in Kodiak.

**Prerequisites:** 16 credits in natural sciences; MATH F251X or MATH F230X; or permission of instructor.

**Lecture + Lab + Other:** 1 + 0 + 3

### FISH F487  Fishery Management  (O, W, n)

3 Credits

**Offered Spring**

Theory and practice of fishery 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:** COMM F131X or COMM F141X; ENGL F414; FISH F288; STAT F200X; or permission of instructor.

**Lecture + Lab + Other:** 3 + 0 + 0

### FISH F490  Experiential Learning -- Fishery 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

2 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);

STAT F200X and ENGL F414.

**Recommended:** FISH F315; STAT F401 or STAT F402.

**Lecture + Lab + Other:** 0 + 0 + 0

### FISH F499  Fishery Senior Thesis

2 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 F603  Writing for Fisheries and Ocean Sciences Workshop

1 Credit

**Offered Spring**

Skills required to prepare and present fisheries technical information in journal articles and other formats. Proficiency in writing, editing, peer reviewing written fisheries and ocean sciences communications. Requires graduate standing and requires students to write about data gathered for graduate thesis. Students bring their own research data as basis for work.

**Prerequisites:** ENGL F414 or ENGL F614 or permission of instructor.

**Lecture + Lab + Other:** 1 + 0 + 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 or permission of instructor.
Cross-listed with MSL F604.
Lecture + Lab + Other: 3 + 3 + 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, ethnecology, property theory, and environmental justice.
FISH F411
Prerequisites: Graduate standing, or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FISH F612  Fish Conservation Biology
4 Credits
Offered Fall Odd-numbered Years
Conservation biology is an applied science that deals with maintaining and restoring threatened populations. Includes theoretical foundations of conservation biology and the practical lessons to be gained from studying historical conservation efforts. Emphasis on case studies.
Note: This course is taught in Juneau.
Lecture + Lab + Other: 3 + 2 + 0

FISH F613  Human-Environment Research Methods
3 Credits
Offered Fall
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.
Stacked with FISH F412
Prerequisites: Graduate standing or permission of instructor.
Cross-listed with ANTH F613.
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 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
This course is taught in Juneau.
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; or permission of instructor.  
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 or equivalent, STAT F401 or equivalent, and proficiency with Excel; or permission of instructor.  
Cross-listed with MSL F627.  
Lecture + Lab + Other: 1 + 3 + 0

FISH F628  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 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/BIOL F427; or permission of instructor and 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 or equivalents.  
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 or equivalent; FISH F627 (Statistical Computing with R) or familiarity with R, general ecology, graduate standing in fisheries or permission of instructor.  
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. Stacked with FISH F433.  
Prerequisites: FISH/FIOL F427 or permission of instructor.  
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 will examine the theory and practice of ecosystem-based fisheries management (EBFM). Topics include legal frameworks, principles, governance, approaches, scientific basis, management implementation and outcomes of EDFM. Emphasis is placed on Alaska with other illustrative examples from around the world.  
Prerequisites: FISH F487; or FISH F640; or graduate standing; or permission of the instructor.  
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 or permission of instructor.  
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FISH F650  Fish Ecology
3 Credits
Offered Fall Odd-numbered Years
This course is an in-depth examination 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 and marine habitats (with an emphasis on the former), as well as the potential threats to these habitats from human activity.
Prerequisites: Graduate standing; or permission of instructor.
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; or permission of instructor.
Cross-listed with MSL F653.
Lecture + Lab + Other: 3 + 0 + 0

FISH F661  Seafood Processing and Preservation
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 constituents such as flavors, vitamins, toxins and carcinogens. This course is offered via videoconference.
Prerequisites: BIOL F342; CHEM F451; or permission of instructor.
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 constituents such as flavors, vitamins, toxins and carcinogens. This course is offered via videoconference.
Prerequisites: BIOL F342; CHEM F451; or permission of instructor.
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 or permission of instructor; 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 Odd-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; or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

FISH F675  Political Ecology
3 Credits
Offered Fall Odd-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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 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

FISH F699  Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 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: ENGL F111X or placement in ENGL F211X/ENGL F213X; sophomore standing, or permission of instructor.
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 or permission of instructor.
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 F101 or equivalent.
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 or equivalent.
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 or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FREN F301  Advanced French  (0, 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: COMM F131X or COMM F141X; FREN F301 or equivalent;
or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FREN F302  Advanced French  (0, 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: COMM F131X or COMM F141X; FREN F301 or equivalent;
or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; FREN F302 or
equivalent; junior standing; or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; FREN F302 or
equivalent; junior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

FREN F433  Studies in French and European Cinema  (h)
3 Credits
Offered Spring or Summer Odd-Numbered Years
The course discusses the evolution of French and European cinema in
historical and artistic contents.
Prerequisites: ENGL/FLPA F217X; ENGL F211X or ENGL F213X;
FREN F301 or FREN F302; or permission of instructor.
Cross-listed with FLPA F433.
Lecture + Lab + Other: 2 + 2 + 0

General Studies (GENR)

GENR F193P  Special Topics  1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

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 F111  Earth Systems: Elements of Physical Geography
(n) 3 Credits
Offered every spring at the Northwest Campus.
Interdisciplinary analysis of the processes that form Earth's physical environment, and how those processes condition the human environment. Includes system interactions among weather, climate, landforms, soils, water resources and vegetation, including world and regional patterns. Also available via e-Learning and Distance Education. ()
Lecture + Lab + Other: 3 + 0 + 0

GEOG F111X  Earth and Environment: Elements of Physical Geography
(n) 4 Credits
This course explores the processes that create and shape Earth's physics; environment. A global systems approach will be used to describe elements of, and interactions among, 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.
Prerequisites: Placement in ENGL F111X or higher; placement in DEV M105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 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: ENGL 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; or permission of instructor.
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 or permission of instructor.
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; permission of instructor; and 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; or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; an introductory geography course or background in European history, social science, or culture; or permission of instructor.
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 F101 or HIST F100X; or a course in Russian history or culture; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F309  Digital Cartography and Geo-Visualization  (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: 4 + 0 + 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 transformations, historical, and contemporary world influences, and foundations of regional political, economic, and military conflicts.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; an introductory geography course or background in Asian history, social science, or culture; or permission of instructor.
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; or permission of instructor.
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 resource 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)
3 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, especially in relation to climate and tectonic events. A semester long research project will allow students to gain experience in the collection and use of a variety of datasets used in landscape analysis. Students will document and present their research through a report and scientific poster.
Prerequisites: GEOG F111X; GEOG F304; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F412  Geography of Climate and Environmental Change
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F418  Biogeography
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: BIOL/NRM F277 or BIOL F371; junior/senior standing; or permission of instructor.
Cross-listed with BIOL F418.
Stacked with GEOG F618; BIOL F618.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F420  Geopolitics of Energy
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 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 F304; PS F201X; PS F203; PS F321; PS F323; ECON F235X; ECON F335; ECON F349; ECON F463; junior standing; or permission of instructor.
Recommenced: GEOG F101X.
Lecture + Lab + Other: 3 + 0 + 0

GEOG F427  Polar Geography
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; or permission of instructor.
Cross-listed with NORS F427.
Stacked with GEOG F627; NORS 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; F339; GEOS F304; GEOS F422; GEOG F458; NRM F338; NRM F435); or permission of instructor.
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 F445  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. Junior standing and ENGL F211X or F213X; or permission of instructor.
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 F101; CHEM F105X or PHYS F103X; NRM F338 or equivalent GIS coursework.
Cross-listed with GEOG F460.
Stacked with GEOG F660; GEOG F660.
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; or permission of instructor.
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 is writing intensive and will focus on scientific writing, and the oral, written and graphical presentation of data and research results.
Prerequisites: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X; at least one writing intensive course designated (W); junior standing.
Cross-listed with NRM 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 or permission of instructor.
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: COMM F131X or F141X; ENGL F211X or ENGL F213X; senior standing; or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
Cross-listed with NORS F627.
Stacked with GEOG F427; NORS 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. Cross-listed with NRM F656 and CCS F656
Prerequisites: Graduate standing or permission of instructor.
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 or permission of instructor.
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 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; or permission of instructor.  
Cross-listed with GEOS F478.  
Stacked with GEOG F478; GEOS F678.  
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 or permission of instructor.  
Cross-listed with NRM F692.  
Lecture + Lab + Other: 1-3 + 0 + 0

GEOG F692P  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 or permission of instructor.  
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 or equivalent; Geology, science or engineering majors; or permission of instructor.  
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 or permission of instructor.  
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; or permission of instructor.  
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 Spring or 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 to mineral resources. NRM F338 Recommended.  
Prerequisites: GE F261 or equivalent; GE F375 or equivalent.  
Lecture + Lab + Other: 2 + 3 + 0

GE F377  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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; GE F261; GEOS F213; GEOS F214; GEOS F322; GEOS F332 or equivalent.  
Lecture + Lab + Other: 0 + 9 + 3

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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; GE F261; GEOS F213; GEOS F214; GEOS F322; GEOS F332 or equivalent.  
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; permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

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; permission of instructor.
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 or equivalent.
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; or permission of instructor.
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 permafrost are given due consideration.
Prerequisites: CHEM F105X, CHEM F106X; or permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

GE F430 Geomechanical Instrumentation
3 Credits
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 or permission of instructor.
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: GE F365 or equivalent; or permission of instructor.
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 or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

GE F445 Design of Earth Dams and Embankments
3 Credits
Offered Fall
Preliminary planning for design and construction of dams, site selection, reservoir assessment, foundation and other building materials, procedures 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. As Demand Warrants
Prerequisites: senior standing or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; senior standing in the geological engineering program with completion of GE F261; GE F365; GE F371; GE F375; GE F381 or equivalent; GE F382 or equivalent; GE F405; GE F420.
Lecture + Lab + Other: 1 + 6 + 0

GE F610 Subsurface Hydrology
3 Credits
Offered Fall Odd-numbered Years
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 or permission of instructor.
Stacked with GE F420.
Lecture + Lab + Other: 2 + 3 + 0
### Geology and Geophysics (GEOS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Prerequisites</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE F100X</td>
<td>Introduction to Earth Science</td>
<td>4</td>
<td>Offered As Demand Warrants</td>
<td>Survey of four main disciplines of earth science: geology, oceanography, meteorology, and astronomy. Lab portion serves as a vehicle to learn scientific methodology, evidence to support theories presented in lectures.</td>
<td>UAF GER Natural Science Req</td>
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<tr>
<td>GE F365</td>
<td>Advanced Geological Materials Engineering</td>
<td>3</td>
<td>Offered Spring</td>
<td>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.</td>
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<tr>
<td>GE F665</td>
<td>Advanced Geostatistical Applications</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>Cross-listed with MIN F408.</td>
<td></td>
</tr>
<tr>
<td>GE F666</td>
<td>Advanced Engineering Geology</td>
<td>3</td>
<td>Offered Fall</td>
<td>The interaction between geology and engineering case histories.</td>
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<tr>
<td>GE F668</td>
<td>Tunneling Geotechniques</td>
<td>3</td>
<td>Offered Fall Even-numbered Years</td>
<td>Tunnel design, case histories, student report.</td>
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<tr>
<td>GE F692</td>
<td>Graduate Seminar</td>
<td>1</td>
<td></td>
<td>Topics in geological engineering explored through talks, group discussions and guest speakers with a high level of student participation.</td>
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<tr>
<td>GE F692P</td>
<td>Graduate Seminar</td>
<td>1</td>
<td></td>
<td>Topics in geological engineering explored through talks, group discussions and guest speakers with a high level of student participation.</td>
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<tr>
<td>GE F698</td>
<td>Non-Thesis Research/Project</td>
<td>1-9</td>
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<tr>
<td>GE F699</td>
<td>Thesis</td>
<td>1-9</td>
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### 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 or equivalent; graduate standing or permission of instructor.
- **Lecture + Lab + Other:** 2 + 3 + 0

### GE F622 Advanced Soil Physics
- **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 geoengineering 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 or equivalent course and Graduate standing in Engineering or permission of instructor.
- **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 geohydrologic processes. Emphasis on modeling hydrologic processes using statistical methods and stochastic interplay of processes between surface and subsurface hydrology.**
- **Prerequisites:** GE F620 or equivalent and graduate standing in Engineering; or permission of instructor.
- **Lecture + Lab + Other:** 3 + 0 + 0

### GE F626 Thermal Geotechnics
- **3 Credits**
- **Offered As Demand Warrants**
- **Fundamentals of thermal regimes of soils and rocks. Thermal impact of structures on soils. Thawing of permafrost beneath roads, buildings and around pipelines. Natural and artificial freezing of soils. Engineering means to maintain thermal regime of soils. Thermal design considerations.**
- **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 or equivalent; graduate standing; or permission of instructor.
- **Cross-listed with MIN F635.**
- **Lecture + Lab + Other:** 2 + 3 + 0

### GE F635 Advanced Geological Materials Engineering
- **3 Credits**
- **Offered Spring**
- **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 or equivalent; permission of instructor.
- **Recommended:** MIN F408.
- **Lecture + Lab + Other:** 3 + 0 + 0
Prerequisites:

GEOS F101X  The Dynamic Earth  (n)
4 Credits
Physical geology: a study of the Earth, its materials, and the processes that effect changes upon and within it. Laboratory training in use of topographic maps and recognition of common rocks and minerals.

Prerequisites: Placement in ENGL F111X or higher; placement in DEV M F105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

GEOS F103  Landscps/Resources Of Ak
3 Credits
Lecture + Lab + Other: 3 + 0 + 0

GEOS F104  Principles of Geology
3 Credits
Lecture + Lab + Other: 3 + 0 + 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 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 ENGL F111X or higher; placement in DEV M F105 or higher; or permission of instructor.
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 ENGL F111X or higher; placement in DEV M F105 or higher; or permission of instructor.
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 ENGL F111X or higher; placement in DEV M F105 or higher; or permission of instructor.
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 F213  Mineralogy  (n)
4 Credits
Offered Fall
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 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 F215X  The Geology of Wine (n)
3 Credits
Offered As Demand Warrants
Mineral chemistry, atomic structure, elementary crystallography, optical crystallography and descriptive and determinative mineralogy. Instrumental determinative techniques (x-ray diffraction, petrographic microscope). Prerequisites or corequisites: CHEM F105X; GEOS F101X; MATH F151X.
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 or permission of instructor.
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. Co-requisites: GEOS F214; or GEOS F262.  
**Lecture + Lab + Other:** 1 + 3 + 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 or equivalent.  
**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:** ENGL F211X or ENGL F213X; GEOS F112; 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; 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; biostatigraphically 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; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.  
**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 or permission of the instructor.  
**Lecture + Lab + Other:** 1 + 3 + 0

GEOS F320  Sedimentology for Geological Engineers  
3 Credits  
Offered Fall  
**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, zoning and grade patterns; and use of structural techniques in mineral deposit exploration/development.  
**Prerequisites:** GEOS F262 or permission of instructor.  
**Lecture + Lab + Other:** 1 + 6 + 0
GEOS F351  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, airborne 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; permission of instructor.  
Lecture + Lab + Other: 8 + 0 + 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 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 or permission of instructor.  
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 or permission of instructor.  
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; permission of instructor.  
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 or permission of instructor.  
Lecture + Lab + Other: 1 + 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; or permission of instructor.  
Lecture + Lab + Other: 2 + 3 + 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: GEOS/GEOG F222 or permission of instructor.  
Lecture + Lab + Other: 2 + 3 + 0  

GEOS/GEOG F222 or permission of instructor.
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 or permission of instructor.
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 F318, MATH F302, and MATH F314 or permission of instructor.
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 or permission of the instructor.
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 F416; GEOS F418.
Stacked with GEOS F638.
Lecture + Lab + Other: 3 + 0 + 0

GEOS F452  Quaternary Seminar
3 Credits
Offered As Demand Warrants
Learning about 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 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 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 GEOG F111 or NRM F380 or permission of instructor.
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/NRM F338 or equivalent; or permission of instructorStacked with GEOS F658.
Lecture + Lab + Other: 2 + 3 + 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 F101; CHEM F105X or PHYS F103X; NRM F338 or equivalent GIS coursework.  
**Cross-listed with GEOG F460.**  
**Stacked with** GEOG F660; GEOG F660.  
**Lecture + Lab + Other:** 3 + 0 + 0

GEOS F462  Glacial & Periglacial Geology  
4 Credits  
**Lecture + Lab + Other:** 0 + 0 + 0

GEOS F463  Glacial and Periglacial Geology  
4 Credits  
**Lecture + Lab + Other:** 0 + 0 + 0

GEOS F475  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:** COMM F131X or COMM F141X; GEOS F304.  
**Stacked with** GEOG F663.  
**Lecture + Lab + Other:** 3 + 3 + 0

GEOS F476  Vertebrate Paleontology  
3 Credits  
Offered Fall  
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 F315W or permission of instructor.  
**Cross-listed with** BIOL F486.  
**Lecture + Lab + Other:** 2 + 3 + 0

GEOS F477  Ice in the Climate System  
3 Credits  
Offered Spring Even-numbered Years  
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. Oral intensive will include instructor and peer feedback.  
**Prerequisites:** PHYS F103X or PHYS F211X; MATH F251X; or permission of instructor.  
**Lecture + Lab + Other:** 2 + 3 + 0

GEOS F478  Ice Age Alaska  
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; or permission of instructor.  
**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 complete written summaries of the seminars.  
**Stacked with** GEOG F682.  
**Lecture + Lab + Other:** 1 + 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 F315W, or permission of instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0

GEOS F486  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 F600  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; or permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

GEOS F602  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 and permission of instructor; 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 Even-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 or permission of instructor.
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 or permission of instructor.
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), (F) 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; or permission of instructor.
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 geological 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 Even-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 and permission of instructor; 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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 and permission of instructor; 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; permission of instructor.
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 and permission of instructor.
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 F626 Applied Seismology
4 Credits
Offered Spring Odd-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; or permission of instructor.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F627 Inverse Problems and Parameter Estimation
3 Credits
Offered Spring Even-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; or permission of instructor.
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 non-biological applications are covered.
Prerequisites: Graduate standing or permission of instructor.
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 or permission of instructor.
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 F318; MATH F302; MATH F314.
Stacked with GEOS F431.
Lecture + Lab + Other: 3 + 3 + 0

GEOS F633  Environmental Geochemistry
3 Credits
Offered Spring Even-numbered Years
Advanced topics and methods in chemistry of aquatic and soil environments. Detailed treatment of the thermodynamic, kinetic and structural principles involved in the description and modeling of low-temperature aqueous geochemical systems. Particular emphasis will be placed on heterogenous interactions, including 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 or permission of instructor.
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 or permission of instructor.
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 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 or permission of instructor.
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, diageneis and classification of limestones, dolostones and related rocks.
Prerequisites: Graduate standing or permission of instructor.
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 F322 and GEOS F421; OR graduate standing.
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOS F651  Quaternary Seminar  
3 Credits  
Offered As Demand Warrants  
Seminar about 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 or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
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; or permission of instructor.  
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 fuels) 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 or permission of instructor.  
Stacked with GEOS F456.  
Lecture + Lab + Other: 3 + 0 + 0  

GEOS F657  Microwave Remote Sensing  
3 Credits  
Offered Spring Even-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 or equivalent.  
Lecture + Lab + Other: 2 + 2 + 0  

GEOS F658  Applications of GPS and GIS in Geophysics  
3 Credits  
Offered Spring  
Prerequisites: Graduate standing or permission of instructor.  
Stacked with GEOS F458.  
Lecture + Lab + Other: 2 + 3 + 0
Prerequisites: 
taking this course.
introductory level (100 or 200 level) courses during the semester they are
given to teaching assistants who are assigned to teach large,
workshops and seminars. If the course is over-enrolled, priority will
be repeated for credit.
their teaching skills. The course format will be a mixture of discussion,
graduate students in the sciences who have an interest in improving
learning opportunity to integrate course knowledge with hands-on field
work.

Prerequisites: Graduate standing or permission of instructor.

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

Glaciers and their geological processes. Emphasizes recognition
and understanding of glacial landforms, sediments and stratigraphic
relations, and implications for paleoclimatology and paleo-geography.
Includes non-glacial techniques and methods for interpreting Quaternary
sediments.

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 or permission of the instructor.

Cross-listed with STO F666, CHEM F666, BIOL F666.

Lecture + Lab + Other: 2 + 0 + 0

GEOS F670 Selected Topics in Volcanology

1-3 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: GEOS F621 and GEOS F417; OR graduate standing.

Lecture + Lab + Other: 1-3 + 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 or permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

GEOS F675 Presentation Techniques in the Geosciences

2 Credits

Offered Fall

Development of oral and written presentation skills in the geological
sciences with emphasis on the critical analysis of both peers and the
instructor(s). Oral and written presentations of abstracts, resumes,
proposals and reports.

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 or
permission of instructor.

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; or permission
of instructor.

Cross-listed with GEOS F478.

Stacked with GEOG F478; GEOG F678.

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 or permission of instructor.

Stacked with GEOS F482.

Lecture + Lab + Other: 1 + 0 + 0

University of Alaska Fairbanks

503
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 or permission of instructor.
Cross-listed with BIOL F486; GEOS F486.
Stacked with BIOL F686.
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

GEOS F694  Trial Course
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

GEOS F698  Non-Thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

GEOS F699  Thesis
1-12 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 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 or equivalent.
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 or equivalent.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X
or ENGL F213X or permission of instructor; GER F302 or equivalent.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X
or ENGL F213X or permission of instructor; GER F301 or equivalent.
Lecture + Lab + Other: 3 + 0 + 0

GER F431  Studies in the Culture of the German Speaking World  (W, h)
3 Credits
Offered Spring Even-numbered Years
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: ENGL F111X; ENGL F211X or ENGL F213X; GER F301 or
equivalent; junior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

GER F432  Studies of German Literature  (W, h)
3 Credits
Offered Spring Odd-numbered Years
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: ENGL F111X; ENGL F211X or ENGL F213X; GER F302 or
equivalent; junior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
Prerequisites: prove immunity for the chicken pox, MMR and hepatitis. Other specific

Lecture + Lab + Other:

the Alaska Board of Nursing to become a Certified Nurse Aide. Student

impacts on behavior.

Lecture + Lab + Other:

Prerequisites: At least 10 credits in upper-division German or permission

of instructor.

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.

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 team; 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 (s)
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 Aid Examination administered by the Alaska Board of Nursing to become a Certified Nurse Aide. Student must be in good physical condition and have documentation of the following immunizations: two chicken pox, hepatitis B series, two MMR’s, a PPD two-step testing process within previous 12 months of the clinical component of class. Students are encouraged to have a titer drawn to prove immunity for the chicken pox, MMR and hepatitis. Other specific immunizations as required by the clinical sites.

Prerequisites: High school graduation or GED; Accuplacer sentence skills and reading comprehension total score of 110-139 and ALEKS test with score between 12-29; or permission of instructor.

Lecture + Lab + Other: 5 + 8 + 0

HLTH F110 Professional Skills for the Workplace
2 Credits
Presents skills to ensure success for the professional secretary, receptionist, medical worker and others. Includes interview skills, business manners, customer service and dressing for success.

Lecture + Lab + Other: 2 + 0 + 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; Accuplacer sentence skills and reading comprehension total score of 110-139 and ALEKS test with score between 15-29; or permission of instructor. Students must be in good physical condition. Co-requisites: AHA BLS provider or healthcare provider CPR card and first aid card.

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.

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 desiring an introduction to anatomy and physiology prior to taking in-depth course work in this field.

Recommended: HLTH F100; high school biology and chemistry.

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: DEVM F054; or placement in DEVM F055 or higher.

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
Prerequisites:
and departmental approval.
hepatitis A, varicella and tetanus; negative TB test within the past year
for hepatitis B; current immunizations for measles, mumps, rubella,
clinical laboratory procedures. Documentation of positive antibody titer
clinical procedures, administering medications and introduction to
Recommended:
Lecture + Lab + Other:

NP#
Prerequisites:
Lecture + Lab + Other:

NP#
Prerequisites:
Lecture + Lab + Other:

HLTH F122  First Aid and CPR
1 Credit
Provides instruction on emergency first aid theory and techniques.
Students acquire knowledge and skills necessary for dealing with
emergencies in a medical/dental office and other clinical settings.
Includes First Aid Certification and health care provider (adult, child and
infant) CPR Certification.
Lecture + Lab + Other: 0.5 + 1 + 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 or permission of instructor.
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 F142  Clinical Procedures I
4 Credits
Introduction to the theoretical basis and performance competencies
for the clinical duties performed by medical assistants in outpatient
facilities. Includes care of patients in the examining room, use and
care of medical instruments and supplies, assisting physicians with
clinical procedures, administering medications and introduction to
clinical laboratory procedures. Documentation of positive antibody titer
for hepatitis B; current immunizations for measles, mumps, rubella,
hepatitis A, varicella and tetanus; negative TB test within the past year
and departmental approval.
Prerequisites: HLTH F100; HLTH F116; HLTH F122 or current First Aid
and CPR.
Lecture + Lab + Other: 3 + 2 + 0
HLTH F193A  Special Topics
1-6 Credits
NP#
Lecture + Lab + Other: 1-6 + 6 + 0
HLTH F195  Special Topics
1-6 Credits
NP#
Lecture + Lab + Other: 1-6 + 0 + 0
HLTH F197  Individual Study
0.5-6 Credits
NP#
Lecture + Lab + Other: 0.5-6 + 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; or permission of instructor.
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; test scores sufficient
for placement in ENGL F111X; or permission of instructor.
Lecture + Lab + Other: 3 + 2 + 0
Prerequisites:
Year and departmental approval. Immunity for hepatitis B, current immunizations for measles, mumps, rubella, varicella, flu shot and two step PPD within the past year. Other specific immunizations as required by the externship sites.

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; or permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

HLTH F244 Clinical Procedures II

4 Credits
Theoretical basis and performance competencies for the clinical duties performed by medical assistants in outpatient facilities. Includes urinalysis, electrocardiograph, subcutaneous and intramuscular injections, routine laboratory procedures, venipuncture, emergencies, and assisting with specialty examinations. All prerequisites may be taken concurrently. Documentation of immunizations or titters to prove immunity for hepatitis B, current immunizations for measles, mumps, rubella, hepatitis A, varicella and tetanus; negative TB test within the past year and departmental approval.

Prerequisites: HLTH F100; HLTH F114 or BIOL F100X; HLTH F116; HLTH F142; HLTH F122 or current AHA BLS provider or healthcare provider CPR and first aid card.

Lecture + Lab + Other: 3 + 2 + 0

HLTH 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

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. Accuplacer combined sentence structure skills and reading comprehension score of 110-129 or completion of DEVE F104; placement into DEVM F055 by ALEKS score of 15-29; Documentation of positive antibody titer for hepatitis B, current immunizations or titters to measles, mumps, rubella, varicella, flu shot and two step PPD within the past year. Other specific immunizations as required by the externship sites.

Prerequisites: HLTH F122 or AHA BLS provider or 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.

Prerequisites: HLTH F122; HLTH F132; HLTH F234; enrollment by special permission only.

Lecture + Lab + Other: 0 + 0 + 6

HLTH F267 Medical Assisting Practicum Completion

2-4 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. HLTH F267 combined with HLTH F261 provides experience equivalent to that in HLTH F268, and satisfies the practicum requirement for the medical assistant certificate and A.A.S.

Prerequisites: HLTH F122; HLTH F132; HLTH F234; HLTH F142; HLTH F244; enrollment by special permission only.

Lecture + Lab + Other: 0 + 0 + 8

HLTH 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 HLTH F267 may be substituted for HLTH F268 to satisfy the degree requirements.

Prerequisites: HLTH F122, HLTH F132, HLTH F142, HLTH F234, HLTH F244; enrollment by special permission only.

Lecture + Lab + Other: 0 + 8 + 12
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: ENGL F111X or permission of instructor.
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 OR (BIOL F104 and BIOL F104L); NRM F101; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
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: ENGL F111X; HLRM F201; or permission of instructor.
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 ENGL F111X or higher; or permission of instructor.
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.  
Cross-listed with ANTH F105.  
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.  
Cross-listed with ANS F111.  
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 F124  African Studies: Introduction to Contemporary Sub-Saharan Africa (s)  
3 Credits  
Offered As Demand Warrants  
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. Introduction 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 Odd-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. We will consider theories and debates about the history of sexuality, and then focus on the history of sexuality in selected times and places, with an emphasis on the modern period.  
Recommended: ENGL F211X or ENGL F213X; HIST F100X; or permission of instructor.  
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; or permission of instructor.  
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  
An in-depth study of 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.  
Cross-listed with FLPA F368; JRN 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.  
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 Weimarer Republic and the Third Reich; World War II and Germany’s defeat; and the postwar 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)  
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 the environment and cooperative work across disciplines.  
Stacked with NORS 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.  
Prerequisites: ENGL F211X or ENGL F213X; HIST F100X; or permission of instructor.  
Recommended: HIST F222X and/or 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.  
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 on-going Israeli-Palestinian conflict on the political dynamics of the entire Islamic world will also be carefully examined. The contestation between secular nationalisms 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 or permission of instructor.  
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 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

HIST F461  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.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; HIST F275; or permission of instructor.
Stacked with HIST F662; NORS F661.
Lecture + Lab + Other: 3 + 0 + 0

HIST F463  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, and the emergence of the revolutionary movement.
Stacked with HIST F663; NORS F663.
Lecture + Lab + Other: 3 + 0 + 0

HIST F464  Soviet and Post-Soviet Russia  (s, 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.
Stacked with HIST F664; NORS F664.
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: ENGL F111X; ENGL F211X or ENGL F213X; HIST F275; or permission of instructor.
Recommended: SPAN F221.
Cross-listed with PS F467.
Lecture + Lab + Other: 3 + 0 + 0

HIST F470  Seminar in Alaskan History  (W)
3 Credits
Advanced seminar in Alaskan history on various themes and topics, stressing the use of original, archival research. May be repeated for credit.
Prerequisites: ENGL F111X; ENGL F211X or F213X; HIST F275; or permission of instructor.
Lecture + Lab + Other: 1.5 + 3 + 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 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: ENGL F111X; ENGL F211X or ENGL F213X; HIST F275; history major with senior standing; or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; HIST F475; permission of instructor.
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; NORS 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; NORS 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:** NORS 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:** NORS F600.  
**Lecture + Lab + Other:**  3 + 0 + 0

HIST F662  History of Alaska (a)  
3 Credits  
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:** NORS 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 or permission of instructor.  
**Cross-listed with:** NORS 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 or permission of instructor.  
**Cross-listed with:** NORS 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 historical sources of this effort.  
**Prerequisites:** Graduate standing or permission of instructor.  
**Cross-listed with:** NORS F681.  
**Stacked with:** HIST F481.  
**Lecture + Lab + Other:**  3 + 0 + 0

HIST F683  20th Century Circumpolar History (a)  
3 Credits  
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 or permission of instructor.  
**Cross-listed with:** NORS F683.  
**Stacked with:** HIST F483.  
**Lecture + Lab + Other:**  3 + 0 + 0

Homeland Security and Emergency Management (HSEM)

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 F195  Special Topics
1-9 Credits
Lecture + Lab + Other: 1-9 + 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: ENGL F111X; or permission of instructor.
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 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 Spring
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.
Prerequisites: MATH F113X; or MATH F151X; or MATH F122X.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F402  Incident Command for Emergency Medical Services
3 Credits
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.
Offered As Demand Warrants.
Prerequisites: HSEM 301 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
HSEM F403  Public Health in Emergencies
3 Credits
Offered As Demand Warrents
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F404  Public Safety Instructional Methods
3 Credits
Offered As Demand Warrents
This course provides the student with the foundation of public safety instructional techniques. Adult education techniques, roles, issues, domains of learning, instructional models and accreditation issues will be emphasized. Course organization and planning for the public safety community including diverse learning populations will be also discussed.
Prerequisites: HSEM F301 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F405  Introduction to Emergency Management Exercise Design
3 Credits
Offered As Demand Warrents
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: ENGL F211X or F213X; HSEM F301; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F406  Comparative Homeland Security
3 Credits
Offered As Demand Warrents
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: ENGL F211X or F213X; HSEM F301; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F407  Comparative Emergency Management
3 Credits
Offered As Demand Warrents
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: ENGL F211X or F213X; HSEM F301; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

HSEM F408  Homeland Defense and Security
3 Credits
Offered As Demand Warrents
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: ENGL F211X or F213X; HSEM F301; or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
HSEM F416  Cybersecurity Management  
3 Credits  
Offered As Demand Warrents  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
HSEM F417  Cybersecurity Resiliency  
3 Credits  
Offered As Demand Warrents  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
HSEM F418  Cybercrime, Fraud and Law  
3 Credits  
Offered As Demand Warrents  
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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
HSEM F423  Disaster Response Operations and Management  
3 Credits  
Offered As Demand Warrents  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
HSEM F434  All-Hazards Risk Analysis  
3 Credits  
Offered As Demand Warrents  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
HSEM F439  Supervising Emergency Services  
3 Credits  
Offered As Demand Warrents  
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 includes 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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
HSEM F440  Advanced Principles of Fire Service Administration  
3 Credits  
Offered As Demand Warrents  
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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
HSEM F445  Business Continuity and Crisis Management  
(O/2, W)  
3 Credits  
Offered As Demand Warrents  
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: ENGL F111X; ENGL F211X or F213X; COMM F311X or F141X; HSEM F301 or AIS F310 or F316 or BA F360 or permission of instructor.  
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; permission of instructor.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; 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; ENGL F111X or ENGL F211X or ENGL F213X; or permission of instructor.
Cross-listed with LEAD F456.
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 Fall
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 a 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

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

HSEM F695  Special Topics  
1-9 Credits  
**Offered Summer**

**Honors Program (HONR)**

HONR F193  Special Topics  
1-6 Credits  
**Lecture + Lab + Other:** 1-6 + 0 + 0

HONR F290  Summer Reading Program  
2 Credits  
Offered Fall  
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.  
**Prerequisites:** ENGL F111X; enrollment in the Honors Program; or permission of instructor.  
**Lecture + Lab + Other:** 2 + 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: ENGL F211X or ENGL F213X; COMM F141X or COMM F131X; enrollment in the Honors Program; or permission of instructor.
Recommended: Honors sections of ENGL F211X or ENGL F213X and of COMM 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: ENGL F211X or ENGL F213X; COMM F141X or COMM F131X; HONR F381; enrollment in the Honors Program; or permission of instructor.
Recommended: Honors sections of ENGL F211X or ENGL F213X and of COMM 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 for Honors students. 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; ENGL F211X or ENGL F213X; COMM F141X or COMM F131X; enrollment in the Honors Program; or permission of the instructor.
Recommended: Honors sections of ENGL F211X or ENGL F213X and of COMM F141X.
Lecture + Lab + Other: 1 + 0 + 0

HONR F390  Liability and Values
3 Credits
Offered As Demand Warrants
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

HONR F498  H*Research
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

HONR F499  H*Senior Thesis
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

Human Services (HUMS)

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
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, disability, 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 F125  Introduction to Addictive Processes
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 F125.
Lecture + Lab + Other: 3 + 0 + 0

HUMS F140  Family Dynamics
3 Credits
Offered Fall As Demand Warrants
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 F150  Workforce Development I
3 Credits
Offered As Demand Warrants
Introduction to the profession of workforce development, including career development theory, relevant helping skills, diverse populations, and ethics and consulting. First of two courses required to become certified as a career development facilitator.
Lecture + Lab + Other: 3 + 1 + 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
Prerequisites: HUMS F150.
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 F240  Family Empowerment II
4 Credits
Offered As Demand Warrants
Designed for family workers to learn empowerment skills which will help them work more effectively with families. Concepts and skills include family development assessment and planning, home visiting, referrals, special services needed and how to assess them, family conferencing and cooperation and collaboration skills in working with other agencies. State and national policies affecting families and family empowerment are considered.
Prerequisites: HUMS F140.
Lecture + Lab + Other: 4 + 0 + 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 F255  Workforce Development II
3 Credits
Offered As Demand Warrants
Continuation of HUMS F250. Emphasis on labor market information, assessment, employability skills, public relations, program management and useful technology. Successful completion of HUMS F150 and HUMS F255 qualifies student for the certification as a career development facilitator.
Prerequisites: HUMS F150.
Lecture + Lab + Other: 3 + 1 + 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 F125 or permission of instructor.
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 F125 or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

HUMS F262 Pharmacology of Addictions 1 Credit
Offered As Demand Warrants
Pharmacological overview of the significant drugs of abuse in today's society.
Prerequisites: HUMS F125.
Lecture + Lab + Other: 1 + 2 + 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 F125.
Lecture + Lab + Other: 1 + 0 + 0

HUMS F265 Substance Abuse and the Family 1-2 Credits
Offered As Demand Warrants
Basic understanding of family dynamics and roles related to addictions.
Prerequisites: HUMS F125 or permission of instructor.
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 F125.
Lecture + Lab + Other: 1-2 + 0 + 0

HUMS F270 Adolescent Issues and Therapeutic Interventions 3 Credits
Offered As Demand Warrants
Basic knowledge of adolescent development and culture for the human services residential care worker. Includes communication and intervention strategies, and life skills assessment with case planning.
Prerequisites: HUMS F170 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

HUMS F272 Attachment, Separation, and Loss 1 Credit
Offered As Demand Warrants
Understanding of the components of the attachment cycle and effects on children when the cycle is disrupted by abuse, neglect, separation and placement. Includes strategies to deal with the losses.
Prerequisites: HUMS F170.
Lecture + Lab + Other: 1 + 0 + 0

HUMS 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

HUMS F290 Case Management 3 Credits
Offered Fall
Challenge and broaden students' understanding, thinking and conceptualizing of case management. Investigate the 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 in 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. Ethical and legal issues related to substance abuse counseling in Alaska.
Prerequisites: PSY F101X or SOC F100X.
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 F125.
Lecture + Lab + Other: 3 + 0 + 0
Humanities (HUM)

**HUM F101 The Humanities: A Cultural Perspective** *(h)*
3 Credits
Offered As Demand Warrants
Examination of humanities using a non-Yup’ik culture and the Yup’ik culture as bases. Introduction of fundamental principles of Yup’ik and non-Yup’ik performing and visual arts, ideas and cultural developments that have stirred and enriched civilization, and aspects of Yup’ik and non-Yup’ik culture to help students develop greater awareness of forces that affect them. Offered only at the Kuskokwim campus.

**Lecture + Lab + Other: 3 + 0 + 0**

**HUM F201X Unity in the Arts** *(h)*
3 Credits
Concentration on the interdependence of the visual arts, the performing arts, and literature, as set against a specific social, political and cultural background of selected eras.

**Prerequisites:** Placement in ENGL F111X or higher; sophomore standing; or permission of instructor.

**Attributes:** UAF Core Aesthetic Appreciation, UAF GER Arts Req

**Lecture + Lab + Other: 3 + 0 + 0**

**HUM 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 and working spaces, artistic design and aesthetics.

**Prerequisites:** ART F261 and ART F262 OR HUM F201X; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.

**Cross-listed with ART F469.**

**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 or permission of instructor.

**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 or permission of instructor.

**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**

Italian (ITAL)

**ITAL F100A Elementary Italian I** *(h)*
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** *(h)*
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 or permission of instructor.

**Lecture + Lab + Other: 3 + 0 + 0**

Japanese (JPN)

**JPN F100A Japanese Culture and Conversation IA** *(h)*
3 Credits
Offered As Demand Warrants
Courses JPN F100A and JPN F100B are introductory courses in the Japanese 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**

**JPN F100B Japanese Culture and Conversation IB** *(h)*
3 Credits
Offered As Demand Warrants
Courses JPN F100A and JPN F100B are introductory courses in the Japanese 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:** JPN F100A or instructor permission.

**Lecture + Lab + Other: 3 + 0 + 0**

**JPN F100E Japanese Culture and Conversation IIA** *(h)*
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 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 or instructor permission.

**Lecture + Lab + Other: 3 + 0 + 0**
JPN F100F  Japanese Culture and Conversation IIB  (h)
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 or instructor permission.
Lecture + Lab + Other: 3 + 0 + 0

JPN F101X  Elementary Japanese I  (h)
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. Course is taught in Japanese.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

JPN F102X  Elementary Japanese II  (h)
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.
Prerequisites: JPN F101X or equivalent.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

JPN F192  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

JPN F201  Intermediate Japanese I  (h)
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 or equivalent.
Lecture + Lab + Other: 4 + 0 + 0

JPN F202  Intermediate Japanese II  (h)
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 or equivalent.
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 or equivalent.
Lecture + Lab + Other: 3 + 0 + 0

JPN F302  Advanced Japanese  (0, 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: COMM F131X or COMM F141X; JPN F301 or equivalent.
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 Spring
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

JPN F331  Women's Voices in Japanese Literature  (W, h)
3 Credits
Offered As Demand Warrants
A close reading of 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: ENGL F111X; ENGL/FL F200X; ENGL F211X or F213X or permission of instructor; Recommended: HIST F121 or HIST F122X or 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 or permission of instructor.  
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: JPN F302 or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
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  
JPN F482  Selected Topics in Japanese (h)  
3 Credits  
Offered As Demand Warrants  
Focuses on topics not covered in JPN F431 or JPN F432. May be repeated for credit.  
Prerequisites: JPN F302 or equivalent; junior standing; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

Journalism (JRN)  
JRN F101X  Media and Culture (h)  
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  
JRN F102X  Introduction to Broadcasting (h)  
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  
JRN F105X  History of the Cinema (h)  
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  
JRN F192  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0  
JRN F192P  Seminar  
1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0  
JRN 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: ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
JRN 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  
JRN 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  

524  Journalism (JRN)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Lecture + Lab + Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>JRN F215</td>
<td>Radio Production</td>
<td>3</td>
<td>Fall</td>
<td>Sound production techniques for radio and television. Emphasis on writing, recording, control room techniques and editing.</td>
<td></td>
<td>2 + 3 + 0</td>
</tr>
<tr>
<td>JRN F217X</td>
<td>Introduction to the Study of Film</td>
<td>(h)</td>
<td>Spring</td>
<td>An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects.</td>
<td>ENGL F111X. Cross-listed with ENGL F217X; FLPA F217X. Attributes: UAF GER Arts Req</td>
<td>2 + 2 + 0</td>
</tr>
<tr>
<td>JRN F220</td>
<td>Adobe Photoshop</td>
<td>3</td>
<td>Fall</td>
<td>Create images that go beyond traditional photo editing and into the realm of painting with depth color manipulation. Includes use of a computer, scanner, analog images and digital camera. Includes ethical and copyright issues of photography manipulation.</td>
<td>JRN F250. Recommended: Advanced knowledge of Macintosh operating system.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>JRN F240</td>
<td>Foreign Corresponding (h)</td>
<td>3</td>
<td>Spring</td>
<td>The U.S. tradition of &quot;objective&quot; 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?</td>
<td></td>
<td>3 + 0 + 0</td>
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<tr>
<td>JRN F250</td>
<td>Website Design</td>
<td>3</td>
<td>Fall</td>
<td>Create website projects. Includes the Internet, design, multimedia and the incorporation of text, sound, images, animation and video.</td>
<td>Familiarity with the World Wide Web, Internet browsers, the Macintosh operating systems, and image editing software; or permission of instructor.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>JRN F251</td>
<td>Introduction to Video Production</td>
<td>4</td>
<td>Fall</td>
<td>An introduction to video production with an emphasis on television studio production.</td>
<td>Cross-listed with FLPA F251.</td>
<td>2 + 5 + 0</td>
</tr>
<tr>
<td>JRN F280</td>
<td>Video Storytelling (h)</td>
<td>(h)</td>
<td>Fall</td>
<td>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.</td>
<td>Cross-listed with FLPA F280.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>JRN F290</td>
<td>Digital Video Editing</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>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 specific editing technology.</td>
<td></td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>JRN F292</td>
<td>Seminar</td>
<td>1-6</td>
<td></td>
<td>Practical experience working with campus media, individual media-related projects for business or media, or in a professional media environment.</td>
<td>JRN F202 or permission of instructor.</td>
<td>1 + 6 + 0</td>
</tr>
<tr>
<td>JRN F300</td>
<td>Internship</td>
<td>1-3</td>
<td></td>
<td>Practical experience working with campus media, individual media-related projects for business or media, or in a professional media environment.</td>
<td></td>
<td>1 + 6 + 0</td>
</tr>
<tr>
<td>JRN F305</td>
<td>Snedden Chair Lectures</td>
<td>3</td>
<td></td>
<td>Rotating series of lectures and seminars with America's leading journalists on topics ranging from war reporting to covering sports. Please contact Department of Journalism for current topic and instructor. Course may be repeated for credit.</td>
<td>Junior standing or permission of instructor.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>JRN F308</td>
<td>Film Criticism (h)</td>
<td>(h)</td>
<td></td>
<td>Theoretical approaches to viewing, analyzing and evaluating film and television program content.</td>
<td>Cross-listed with FLPA F308.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>JRN F311</td>
<td>Magazine Article Writing (W, h)</td>
<td>(W, h)</td>
<td></td>
<td>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.</td>
<td>ENGL F111X; ENGL F211X or ENGL F213X; JRN F202; or permission of instructor.</td>
<td>3 + 0 + 0</td>
</tr>
</tbody>
</table>
**JRN 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:** JRN F202 or permission of instructor; junior standing.  
*Lecture + Lab + Other:* 3 + 0 + 0

**JRN F324  Typography and Publication Design**  
3 Credits  
Offered Spring  
Typography, layout and design, coupled with a study of the methods of printing production.  
**Prerequisites:** Permission of instructor.  
*Lecture + Lab + Other:* 2 + 2 + 0

**JRN 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; JRN F217X or JRN F308; or permission of instructor.  
*Cross-listed with* HIST F368; FLPA F368.  
*Lecture + Lab + Other:* 3 + 0 + 0

**JRN 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/JRN F204 or FLPA F260 or JRN F290; COMM F131X or COMM F141X.  
*Cross-listed with* ART F371; FLPA F371.  
*Lecture + Lab + Other:* 1 + 4 + 0

**JRN F380  Women, Minorities and the Media**  
(O, h)  
3 Credits  
Offered Fall  
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, multi-culturalist perspective using a broad feminist analysis encompassing issues of gender as well as class, race, age and sexual orientation.  
**Prerequisites:** COMM F131X or COMM F141X; junior standing.  
*Cross-listed with* WGS F380.  
*Lecture + Lab + Other:* 3 + 0 + 0

**JRN 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:** ENGL F111X or ENGL F213X; JRN F202; or permission of instructor.  
*Lecture + Lab + Other:* 2.5 + 0.5 + 0

**JRN F400  Professional Media Internship**  
1-3 Credits  
Practical training in a supervised, professional media environment. Participation at an approved publication, TV or radio station, or other media-related business or non-profit organization is required.  
**Prerequisites:** Senior standing or permission of instructor.  
*Lecture + Lab + Other:* 1 + 6 + 0

**JRN F401  Beat Reporting**  
3 Credits  
Offered Fall  
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.  
**Prerequisites:** JRN F202.  
*Lecture + Lab + Other:* 2 + 2 + 0

**JRN F402  Advanced Photography**  
(h)  
3 Credits  
Offered Spring  
Continuation of JRN F203/ART F283. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography.  
**Prerequisites:** JRN F203 or ART F283 or instructor permission.  
*Cross-listed with* ART F483.  
*Lecture + Lab + Other:* 2 + 3 + 0

**JRN F404  Photojournalism I**  
(h)  
3 Credits  
Offered Fall  
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.  
**Prerequisites:** JRN F203 or ART F283 or permission of instructor.  
*Lecture + Lab + Other:* 2 + 3 + 0

**JRN F405  Advanced Photography Seminar**  
3 Credits  
Offered Spring Odd-numbered Years  
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.  
**Prerequisites:** JRN F402; JRN F404.  
*Cross-listed with* ART F465.  
*Stacked with* ART F665; JRN F605.  
*Lecture + Lab + Other:* 2 + 3 + 0

**JRN F406  Photojournalism II**  
3 Credits  
Offered Spring Even-numbered Years  
Continuation of Photojournalism I. Emphasis on developing skills in photo essay and documentary photography, and working as a freelance photojournalist. Seminar-style class includes work with film and digital equipment.  
**Prerequisites:** JRN F404 or ART F465.  
*Lecture + Lab + Other:* 2 + 2 + 0
JRN F407  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: JRN F203 or ART F283 or permission of instructor.
Cross-listed with ART F487.
Lecture + Lab + Other: 2.5 + 2 + 0

JRN F408  Media Management
3 Credits
Offered As Demand Warrants
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.
Prerequisites: Junior standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

JRN F411  Writing for a Living  (W)
3 Credits
Offered As Demand Warrants
Writing advanced prose for publication in books or magazines. May be repeated for credit with permission of instructor.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; JRN F311; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

JRN 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 JRN F402; ART F487 or JRN F407 or permission of instructor.
Cross-listed with ART F412.
Lecture + Lab + Other: 3 + 0 + 0

JRN F413  Mass Media Law and Regulation  (s)
3 Credits
Offered Fall
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.
Prerequisites: JRN F202 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

JRN F421  Journalism in Perspective  (h)
3 Credits
Offered Fall
Seminar-style exploration of the ethical, financial, corporate and international trends tugging at American journalism.
Prerequisites: Junior standing.
Lecture + Lab + Other: 3 + 0 + 0

JRN F432  Public Relations Techniques  (W)
3 Credits
Offered Fall Even-numbered Years
This course examines the role of public relations in publicity, media relations, market research, crisis management, ethics, communication theories and related topics. Central to the class is the learning of persuasive writing techniques and the writing and rewriting of public relations documents including press releases, public service announcements, media alerts, features, newsletters and backgrounder.
Class includes examination of case studies and preparation of a comprehensive final paper/project: a public communications "message plan" plan for a business, organization or institution.
Prerequisites: ENGL F211X or ENGL F213X; JRN F202; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

JRN F440  Ethics and Reporting in the Far North
3 Credits
Offered As Demand Warrants
Historical overview of media coverage of the northern frontier with focus on journalistic ethics. Comparison made to media climate in third world countries.
Stacked with JRN F640; NORS F640.
Lecture + Lab + Other: 3 + 0 + 0

JRN 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: ENGL F111X; ENGL F211X or ENGL F213X; JRN F202; or permission of instructor.
Lecture + Lab + Other: 2 + 2 + 0

JRN 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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; JRN F202.
Lecture + Lab + Other: 3 + 0 + 0

JRN F453  Television News Reporting  (O)
3 Credits
Offered Spring
Electronic news gathering using videotape equipment, scriptwriting, location sound recording, interview techniques, editing, videography and other aspects of field news reporting. JRN F452 may be taken concurrently with JRN F453.
Prerequisites: COMM F131X or COMM F141X; JRN F451; JRN F452.
Lecture + Lab + Other: 2 + 2 + 0

JRN F454  Newscast  (O)
3 Credits
Offered Fall
In-depth experience with television news production including electronic newsgathering. Emphasis on producing a broadcast-quality weekly newscast and packages for distribution in various media.
Prerequisites: JRN F101X; JRN F202; JRN F251; JRN F302; COMM F131X or F141X.
Lecture + Lab + Other: 1 + 0 + 6
JRN F456  Science Writing for Magazines and Newspapers  (W, h)  3 Credits
Offered As Demand Warrants
Students write and analyze science articles aimed at the general public. 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 science background is not necessary. Repeatable once for additional credit with permission of instructor.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; JRN F202; or permission of instructor.
Stacked with JRN F656.
Lecture + Lab + Other: 3 + 0 + 0

JRN 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 JRN F290; FLPA F271 or FLPA/JRN F280; video editing experience; or permission of instructor.
Cross-listed with FLPA F458.
Lecture + Lab + Other: 3 + 0 + 0

JRN 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 or permission of instructor.
Cross-listed with GER F460.
Lecture + Lab + Other: 3 + 0 + 0

JRN F471  Advanced Digital Design  (0, 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: COMM F131X or COMM F141X; JRN F250; JRN F350; ART/JRN F371; one college level studio art course.
Cross-listed with ART F471.
Lecture + Lab + Other: 1 + 4 + 0

JRN F472  3D Animation  (O, h)  3 Credits
Offered Spring
Concept and technique of 3D computer generated animation with applications in fine and commercial art. 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/FLPA F231; ART/FLPA F371 or equivalent;
COMM F131X or COMM F141X.
Cross-listed with ART F472; FLPA F472.
Lecture + Lab + Other: 1 + 4 + 0

JRN 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 or permission of instructor.
Cross-listed with FLPA F480.
Lecture + Lab + Other: 3 + 0 + 0

JRN 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. 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 F484.
Stacked with ART F684 and JRN F684.
Lecture + Lab + Other: 2 + 3 + 0

JRN F490  Online Publication: "Extreme Alaska"  3 Credits
Offered Spring
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: JRN F202; senior standing; or permission of instructor.
Lecture + Lab + Other: 2 + 2 + 0

JRN F492  Seminar  1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

JRN F492P  Seminar  1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

JRN F498  Undergraduate Research  3 Credits
Lecture + Lab + Other: 0 + 0 + 0

JRN F601  Communication Research Methodologies: Social Science  3 Credits
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: COMM/JRN F601 is a required core course for the M.A. in Professional Communication.
Cross-listed with COMM F601.
Lecture + Lab + Other: 3 + 0 + 0
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>JRN F605</td>
<td>Advanced Photography Seminar</td>
<td>3</td>
<td>Spring</td>
<td>Offered Spring Odd-numbered Years</td>
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<td>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.</td>
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<td><strong>Prerequisites:</strong> JRN F402; JRN F404; or permission of instructor.</td>
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<td><strong>Cross-listed with</strong> ART F465 and ART F665.</td>
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<td><strong>Stacked with</strong> JRN F405.</td>
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<td>JRN F611</td>
<td>Advanced Writing for Publication</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>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.</td>
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<td><strong>Prerequisites:</strong> JRN F202 or comparable upper-division ENGL courses; graduate standing; or permission of instructor.</td>
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<td>JRN F613</td>
<td>Advanced Mass Media Law and Regulation</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>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.</td>
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<td><strong>Prerequisites:</strong> Graduate standing.</td>
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<tr>
<td>JRN F625</td>
<td>Communication Theory</td>
<td>3</td>
<td>Fall</td>
<td>Offered Fall</td>
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<td>Required course for the M.A. 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.</td>
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<td><strong>Cross-listed with</strong> COMM F625.</td>
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<td>JRN F640</td>
<td>Ethics and Reporting in the Far North</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Historical overview of media coverage of the northern frontier with focus on journalistic ethics. Comparison made to media climate in third world countries.</td>
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<td>JRN F656</td>
<td>Science Writing for Magazines and Newspapers</td>
<td>3</td>
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<td>Students write and analyze science articles aimed at the general public. 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 science background is not necessary. Repeatable once for additional credit with permission of instructor.</td>
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<td><strong>Stacked with</strong> JRN F456.</td>
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<td>JRN F684</td>
<td>Multimedia Theory and Practice</td>
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<td>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.</td>
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<td><strong>Prerequisites:</strong> Understanding of computer graphics programs like Illustrator, Freehand, etc.</td>
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<td><strong>Cross-listed with</strong> ART F684.</td>
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<td><strong>Stacked with</strong> JRN F484 and JRN F484.</td>
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<td>JRN F698</td>
<td>Non-thesis Research/Project</td>
<td>1-9</td>
<td>As Demand Warrants</td>
<td>1-9 Credits</td>
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<td>Candidates in the journalism concentration for the M.A. in Professional Communication may elect to complete a research project. The requirement consists of an original research project directed by a member of the graduate faculty in the Department of Journalism. The accepted and completed project will be presented in an appropriate public forum.</td>
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<td>JRN F699</td>
<td>Thesis</td>
<td>1-9</td>
<td>As Demand Warrants</td>
<td>1-9 Credits</td>
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<td>Candidates in the journalism concentration for the M.A. in Professional Communication may elect to complete a thesis. The requirement consists of an original research directed by a member of the graduate faculty in the Department of Journalism. The accepted and completed project will be presented in an appropriate public forum.</td>
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**Justice (JUST)**

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<tr>
<td>JUST F110X</td>
<td>Introduction to Justice</td>
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<td>Survey of the structure and process of the agencies of criminal justice. Includes introduction to criminology, criminal law, police, courts and corrections.</td>
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<td><strong>Attributes:</strong> UAF GER Social Sciences Req</td>
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JUST F125 Introduction to Addictive Processes
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 F125.
Lecture + Lab + Other: 3 + 0 + 0

JUST F201 Dispute Resolution and Restorative Practices (s)
3 Credits
Offered Fall and Spring
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: ENGL F111X; COMM F131X or COMM F141X; PS/ECON F100X or JUST F110X.
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 F251 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.
Prerequisites: JUST F110X.
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: Junior standing; JUST F310; ENGL F211X or ENGL F213X or permission of the instructor.
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; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; 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
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: ENGL F111X, ENGL F211X or ENGL F213X or permission of instructor; 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: ENGL 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 F251; or permission of instructor. 
Lecture + Lab + Other: 3 + 0 + 0 
JUST F453  Comparative Criminology  (0, 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: COMM F131X or COMM F141X; JUST F110X; JUST F251 or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; JUST F110X; JUST F354; junior standing; or permission of instructor.
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: COMM F131X or COMM F141X; JUST F110X; JUST F222; JUST F251; senior standing; Justice major.
Lecture + Lab + Other: 3 + 0 + 0 
JUST F475  Internship  
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  Seminar in Critical Issues in Criminal Justice  
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 F492P  Seminar  
1 Credit
Lecture + Lab + Other: 1 + 0 + 0 
JUST F498  Research Project  
3 Credits
Offered Spring
This course surveys the basic practical and theoretical foundations of 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: ENGL F111X; COMM F121X or F141X; ECON F100X or FS F100X or JUST F110X.
Lecture + Lab + Other: 3 + 0 + 0 
JUST F605  Administration and Management of Criminal Justice Organizations  
3 Credits
Offered Fall
A comprehensive overview of management and administration of criminal justice agencies with an emphasis on organizational behavior. Included is the study of management theories, leadership roles, and the development of human resources within the organizational context. This course will be offered over the Internet. Note: Offered via the Internet.
Prerequisites: Admission to the M.A. degree program in Justice. 
Recommended: B.A. or B.S. in relevant area.
Lecture + Lab + Other: 3 + 0 + 6 
JUST F610  Ethics in Criminal Justice Management  
3 Credits
Offered as Demand Warrants
Confronting ethical situations that may arise in the management of criminal justice organizations. Examination of the ethical and moral foundations of our current criminal justice system to help make decisions in keeping with the goals of justice. Note: Offered via the Internet.
Prerequisites: Admission to the M.A. degree program in Justice.
Recommended: B.A. or B.S. in relevant area.
Lecture + Lab + Other: 3 + 0 + 6 
JUST F615  Justice Program Planning/ Evaluation and Grant Writing  
3 Credits
Offered Spring
Program planning and evaluation. Includes grant proposal writing with emphasis on federal sources of grant funding. Note: Offered via the Internet.
Prerequisites: Admission to M.A. in Justice program. 
Recommended: B.A. or B.S. in relevant area.
Lecture + Lab + Other: 3 + 0 + 6 
JUST F620  Personnel Management in Criminal Justice  
3 Credits
Offered as Demand Warrants
Foundation for effective management of personnel in criminal justice by supervisors. Includes recruiting, selection, training, on-site supervision, termination and replacement of subordinates. Note: Offered via the Internet.
Prerequisites: Admission to M.A. in Justice program. 
Recommended: B.A. or B.S. degree in relevant area.
Lecture + Lab + Other: 3 + 0 + 6
 JUST F625  Legal Aspect of Criminal Justice Management
3 Credits
Offered Spring
A basic understanding of legal issues faced by criminal justice managers and administrators. Included is a study of the legal considerations surrounding recruitment and hiring practices, sexual harassment, the Age Discrimination in Employment Act, the Americans with Disabilities Act and the Fair Labor Standards Act. The course will be offered via the Internet.
Prerequisites: Admissions to the M.A. in Justice program.
Recommended: B.A. or B.S. in relevant area.
Lecture + Lab + Other: 3 + 0 + 6

 JUST F630  Media Relations and Public Relations
3 Credits
Offered As Demand Warrants
Understanding the role of the media in modern society and how to effectively represent an organization to the media. Includes First Amendment and Freedom of Information Act case law and administrative decisions involving the broadcast media. The primary focus is upon preparing justice administrators to effectively meet their legal obligations with regard to dissemination of information to the media and the public.
Note: Offered via the Internet.
Prerequisites: Admission to M.A. in Justice program.
Recommended: B.A. or B.S. in relevant area.
Lecture + Lab + Other: 3 + 0 + 6

 JUST F640  Community/Restorative Justice
3 Credits
Offered Fall
Using community resources to address public safety concerns. Includes recent developments and an emerging awareness that public safety solutions can be achieved efficiently by cooperative efforts between justice agencies and community resources. Note: Offered via the Internet.
Prerequisites: Admission to M.A. in Justice program.
Recommended: B.A. or B.S. in relevant area.
Lecture + Lab + Other: 3 + 0 + 6

 JUST F650  Analysis Techniques for the Criminal Justice Administrator
3 Credits
Offered As Demand Warrants
Common techniques used to analyze numerical data commonly found occurring in small to large agencies. Emphasis on issues of data quality such as reliability and validity, methods of graphical presentation, inferential techniques, forecasting models, sampling techniques and computer analysis programs such as Statistical Programs for the Social Sciences (SPSS).Note: Web-based course with contact over discussion board and e-mail.
Prerequisites: JUST F605; and admission to M.A. in Justice program.
Lecture + Lab + Other: 3 + 0 + 0

 JUST F670  Seminar in the Administration of Juvenile Justice
3 Credits
Offered Spring
Legal and administrative aspects of the juvenile justice system. Emphasis will be placed on developing an applied knowledge regarding the administration of juvenile justice within the legal framework. Includes hypothetical situations in an effort to enhance the ability to apply theoretical concepts to real life situations. Note: Offered via the Internet.
Prerequisites: JUST F605; admission to M.A. in Justice program.
Lecture + Lab + Other: 3 + 0 + 6

 JUST F690  Seminar in Critical Issues and Criminal Justice Policy
3 Credits
Offered As Demand Warrants
This seminar will be the only course actually requiring a student to attend on the UAF Campus. 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 the M.A. degree in Justice will make presentations. Attendance is required on the UAF campus. Note: Offered via the Internet.
Prerequisites: Admissions to M.A. in Justice program.
Recommended: B.A. or B.S. in relevant area.
Lecture + Lab + Other: 3 + 0 + 6

 JUST F698  Non-Thesis Research/Project
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 1-12

 JUST F699  Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 1-12

Latin (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; or a functional equivalent.
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 or equivalent.
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

LE 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-borne pathogens and protective measures. Special Conditions: Students must meet basic Police Standards qualifications for police officers.
Lecture + Lab + Other: 3 + 3 + 0

LE 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 Sports 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. This course is cross-listed with BA F280.
Lecture + Lab + Other: 3 + 0 + 0

LEAD F305 Leadership Alaska: Making a Difference
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 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; or permission of instructor.
Lecture + Lab + Other: 4 + 0 + 0

LEAD F456 Leadership and Influence During Crisis
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 include 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; ENGL F111X or ENGL F112X or ENGL F113X; or permission of instructor.
Cross-listed with HSEM F456.
Lecture + Lab + Other: 3 + 0 + 0

LEAD F470 Leadership Theory and Development
3 Credits
Offered Alternate Fall
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: ENGL F111X; ENGL F211X or ENGL F213X; COMM F131X or COMM F141X and BA F390 or permission of the instructor.
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 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: ENGL F211X or ENGL F213X; COMM F131X or COMM F141X; BA F390 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
Liberal Arts and Science (LAS)

LAS F197  Individual Study
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

LAS F397  Individual Study
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

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: ENGL F111X; ENGL F211X or ENGL F213X; junior or senior standing as a major in the B.A.S.
Lecture + Lab + Other: 2 + 3 + 0

LAS F497  Individual Study
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 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

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: ENGL 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 Spring
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 ethno linguistic groups in the media.
Prerequisites: ANTH F100X or LING F101X.
Cross-listed with ANTH F223.
Lecture + Lab + Other: 3 + 0 + 0

LING F250  Language in Culture and Communication (s)
3 Credits
Offered Fall Odd-numbered Years; As Demand Warrents
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 interactional sociolinguistics, writing systems and ritual language? Cross-listed with ANTH F260
Prerequisites: ANTH F100X; or ANTH F101X; or ANTH F215; or SOC F100X; or LING F101X.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

LING F303  Language Acquisition (O, W)
3 Credits
Offered As Demand Warrants
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
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 Fall Odd-numbered Years
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
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: ENGL F211X or F213X; 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 or permission of instructor.
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. Morphological structure of Alaska Native languages and other non-Indo-European languages.
Prerequisites: LING F318 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

LING F410  Theory and Methods of Second Language Teaching (O)
3 Credits
Offered Fall
Theory and methods of teaching a second language, including various pedagogical approaches, overview of second language acquisition theory, discussion of materials and testing.
Prerequisites: COMM F131X or COMM F141X; three years of a foreign or Alaska Native language or LING F302 and LING F315; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

LING F420  Semantics (h)
3 Credits
Offered Spring
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; or permission of instructor.
Stacked with LING F620.
Lecture + Lab + Other: 3 + 0 + 0

LING F430  Historical Linguistics (h)
3 Credits
Offered Fall
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 an unfamiliar language with a language consultant, selecting and carrying out a well-defined project, resulting in a term paper.
Prerequisites: LING F318; LING F320; or permission of instructor.
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
(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 this course.
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X.
Cross-listed with ANTH F435.
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: ENGL F111X; ENGL F211X or ENGL F213X; LING F101X; or permission of instructor.
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; or permission of instructor.
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: COMM F131X or COMM 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: ENGL F211X or ENGL F213X; LING F410; or permission of instructor.
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, Athabaskan morphology. May be repeated once.
Prerequisites: LING F101X; LING F318; LING F320; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

LING F492  Seminar
1-3 Credits
Lecture + Lab + Other: 0 + 0 + 0

LING F492P  Seminar
1-3 Credits
Lecture + Lab + Other: 0 + 0 + 0

LING F600  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.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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 F611 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 Spring Odd-numbered Years
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 Spring Even-numbered Years
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 or permission of instructor.
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
3 Credits
Offered Spring Odd-numbered Years
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 or equivalent; demonstrated background in phonology and morphology; or permission of instructor.
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  (a)
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 an unfamiliar language with a language consultant, selecting and carrying out a well-defined project, resulting in a term paper.
Prerequisites: LING F627 or permission of instructor.
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
The 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 are not part of the scope of the class.
Prerequisites: Graduate standing.
Cross-listed with ANTH F635.
Stacked with ANTH F435; LING F435.
Lecture + Lab + Other: 3 + 0 + 0

LING F640  Linguistic Anthropology: Language, Thought and Action
3 Credits
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
Offered As Demand Warrants
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 Fall Odd-numbered Years
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 or equivalent; 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 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
Lecture + Lab + Other: 1-9 + 0 + 0

**Marine Science and Limnology (MSL)**

**MSL F111X  The Oceans (n, a)**
3 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 ENGL F111X or higher; placement in DEV F105 or higher; or permission of instructor.
**Attributes:** UAF GER Natural Science Req
**Lecture + Lab + Other: 3 + 3 + 0**

**MSL F192  Seminar**
1 Credit
**Lecture + Lab + Other: 0 + 0 + 0**

**MSL F192P  Seminar**
1 Credit
**Lecture + Lab + Other: 0 + 0 + 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, F212, F213 (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 or concurrent enrollment
**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; or permission of instructor.
**Lecture + Lab + Other: 3 + 0 + 0**

**MSL F216  The Oceans and Global Change**
3 Credits
**Offered Fall**
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 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 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 F116 or MSL F212 or instructor permission.
**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 F101; 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 or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
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 higher) or PHYS F211X (or higher); or instructor permission.  
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. Stacked with MSL F623 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  
(a)  
3 Credits  
Offered Fall Even-numbered Years  
Physical, biological, chemical and geological oceanography of the polar oceans with emphasis on comparing and contrasting the Arctic and Antarctic.  
Prerequisites: MSL F111; or graduate standing.  
Stacked with MSL F621.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F435  Acoustical Oceanography  
3 Credits  
Principles and applications of underwater sound in solving oceanographic problems related to chemistry, physics, geology and biology, including hydroacoustical methods, acoustical phenomena, bioacoustics and fisheries acoustics, environmental noise and signal processing.  
Prerequisites: College physics and calculus.  
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
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. Includes collection of marine macroalgae, invertebrates and plankton and relating their anatomical organization to habitat, lifestyle and ecology. Emphasis on familiarization with Alaska's nearshore flora and fauna, the ecological function of organisms and ecosystem dynamics. Includes employing 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.
Prerequisites: One year of biology and permission of instructor.
Recommended: Basic courses in ecology and invertebrate zoology.
Stacked with MSL F651.
Lecture + Lab + Other: 3 + 6 + 0

MSL F456 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 F656.
Lecture + Lab + Other: 28 + 35 + 0

MSL F463 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: Upper-division standing; CHEM F105X; CHEM F106X; MSL F111X or MSL F211, F212, F213L series; or permission of instructor.
Stacked with MSL F663.
Lecture + Lab + Other: 3 + 0 + 0

MSL F467 Introduction to Marine Macroalgae (n)
3 Credits
Offered As Demand Warrants
Introduction to marine macroalgae. 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 F667.
Lecture + Lab + Other: 2 + 3 + 0

MSL F492 Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

MSL F492P Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

MSL F495P Special Topics
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

MSL F498 Research
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

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 F651 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: Upper-division standing, CHEM F106X, BIOL F116X.
Stacked with CHEM F660; MSL F660.
Lecture + Lab + Other: 3 + 0 + 0

MSL F656 Marine Biology and Ecology Field Course
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. Includes collection of marine macroalgae, invertebrates and plankton and relating their anatomical organization to habitat, lifestyle and ecology. Emphasis on familiarization with Alaska's nearshore flora and fauna, the ecological function of organisms and ecosystem dynamics. Includes employing 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.
Prerequisites: One year of biology and permission of instructor.
Recommended: Basic courses in ecology and invertebrate zoology.
Stacked with MSL F651.
Lecture + Lab + Other: 3 + 6 + 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: Upper-division standing; CHEM F105X; CHEM F106X; MSL F111X or MSL F211, F212, F213L series; or permission of instructor.
Stacked with MSL F663.
Lecture + Lab + Other: 3 + 0 + 0

MSL F667 Introduction to Marine Macroalgae (n)
3 Credits
Offered As Demand Warrants
Introduction to marine macroalgae. 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 F667.
Lecture + Lab + Other: 2 + 3 + 0

MSL F651 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: Upper-division standing, CHEM F106X, BIOL F116X.
Stacked with CHEM F660; MSL F660.
Lecture + Lab + Other: 3 + 0 + 0
| Course Code | Course Name                                      | Credits | Offered                  | Prerequisites                                                                
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<tbody>
<tr>
<td>MSL F601</td>
<td>Professional Development</td>
<td>1</td>
<td>Fall</td>
<td>Graduate status.</td>
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<td>Lecture + Lab + Other: 1 + 0 + 0</td>
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<tr>
<td>MSL F602</td>
<td>Proposal Writing</td>
<td>1</td>
<td>Fall; As Demand Warrants</td>
<td>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</td>
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<tr>
<td>MSL F604</td>
<td>Modern Applied Statistics for Fisheries</td>
<td>4</td>
<td>Odd-numbered Years</td>
<td>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 or permission of instructor. Cross-listed with FISH F604. Lecture + Lab + Other: 3 + 3 + 0</td>
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<tr>
<td>MSL F605</td>
<td>Controversies in Marine Science</td>
<td>1</td>
<td>Spring Even-Numbered Years</td>
<td>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</td>
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<tr>
<td>MSL F610</td>
<td>Marine Biology</td>
<td>3</td>
<td>Spring</td>
<td>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 or permission of instructor. Recommended: Courses in invertebrate zoology, ichthyology, and vertebrate zoology. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>MSL F612</td>
<td>Early Life Histories of Marine Invertebrates</td>
<td>3</td>
<td>Odd-numbered Years</td>
<td>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</td>
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<tr>
<td>MSL F613</td>
<td>Veterinary Nutrition and Metabolism</td>
<td>2</td>
<td></td>
<td>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</td>
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<tr>
<td>MSL F615</td>
<td>Physiology of Marine Organisms</td>
<td>3</td>
<td></td>
<td>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 or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>MSL F618</td>
<td>Functional Anatomy</td>
<td>8</td>
<td>Fall</td>
<td>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. Stacked with DVM F616. Lecture + Lab + Other: 5 + 6 + 0</td>
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<tr>
<td>MSL F619</td>
<td>Biology of Marine Mammals</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>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</td>
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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; or permission of instructor.  
Lecture + Lab + Other: 3 + 3 + 0  

MSL F621  Polar Marine Science  
(a)  
3 Credits  
Offered Fall Even-numbered Years  
Stacked with MSL F431  
Physical, biological, chemical and geological oceanography of the polar oceans with emphasis on comparing and contrasting the Arctic and Antarctic.  
Prerequisites: MSL F620; or graduate standing.  
Lecture + Lab + Other: 3 + 0 + 0  

MSL F622  Tides--Their Nature and Impact  
3 Credits  
Offered Spring Even-numbered Years  
This course will provide students in marine sciences with in-depth knowledge of tides and the role of tides in the physical, biological, chemical and geological processes in the oceans. We will investigate the importance of tides for the coastal regions of the Bering Sea and North Pacific. We will also cover associated aspects such as tidal currents and their role in transport of sediments, zooplankton and fish larvae, harnessing the tidal power for the generation of electricity, and impact of tides on climate.  
Prerequisites: MSL F620; MATH F252X; baccalaureate degree in physics, engineering, mathematics or equivalent.  
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. Stacked with MSL F421  
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 F624  Oceanic-Atmospheric Gravity Waves  
3 Credits  
Offered Spring; As Demand Warrants  
Introduction to the dynamics of surface and internal gravity waves in non-rotating and rotating fluids including, derivation/solutions of the wave equation, approximations to the governing equations, particle motions and wave energetics, dispersion relationships, phase and group velocities, normal mode and WKB theory, refraction, reflection, critical layer absorption, wave instabilities.  
Prerequisites: MSL F620; MATH F302; or permission of instructor.  
Cross-listed with ATM F624.  
Lecture + Lab + Other: 3 + 0 + 0  

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 F626  Continental Shelf Dynamics  
3 Credits  
Offered As Demand Warrants  
Geophysical fluid dynamic fundamentals appropriate to continental shelf circulation. Steady and time-dependent wind and buoyancy-forced flows in the presence of stratification and bathymetry.  
Prerequisites: MSL F620; MATH F421.  
Lecture + Lab + Other: 3 + 0 + 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 or equivalent, STAT F401 or equivalent, and proficiency with Excel; or permission of instructor.  
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 F629  Methods of Numerical Simulation in Geophysical Fluid Dynamics  
4 Credits  
Offered Fall Odd-numbered Years  
Fundamentals of computer simulation, including time and spatial differencing and stability theory applied to partial differential equations describing dynamic processes in the ocean and atmosphere. Numerical approximation schemes for geophysical fluid dynamics will be analyzed through equations of motion, continuity and transport. Special consideration given to description of frictional processes in turbulent flow and transport/diffusion phenomena. Includes laboratory practice.  
Prerequisites: MATH F310; MATH F421; MATH F422 or equivalent; baccalaureate degree in physics, engineering, mathematics or equivalent; experience with FORTRAN.  
Lecture + Lab + Other: 3 + 3 + 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 or permission of instructor.
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 or equivalent; FISH F627 (Statistical Computing with R) or familiarity with R, general ecology, graduate standing in fisheries or permission of instructor.
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; or permission of the instructor.
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
3 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.
Prerequisites: Successful completion of first semester veterinary courses.
Cross-listed with BIOL F632; DVM F637.
Lecture + Lab + Other: 3 + 0 + 0

MSL F638 Veterinary Parasitology
2 Credits
Offered Spring
Biological 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: Permission of instructor.
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.
Prerequisites: Permission of instructor.
Stacked 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; or permission of instructor.
Recommended: FISH F400.
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; permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Cross-listed with FISH F653.
Lecture + Lab + Other: 3 + 0 + 0

MSL F654 Benthic Ecology
3 Credits
Offered Fall Even-numbered Years
Ecology of marine benthos, from subtidal to hadal zone with emphasis on soft-sediment systems, seamounts and chemosynthetic environments. Methods of studying benthic ecosystems. Life strategies of benthic organisms, including animal-sediment relationships, feeding, reproduction and growth. Large scale spatial and temporal patterns in distribution and biodiversity of benthic organisms. Organic matter deposition and cycling in marine sediments.

Lecture + Lab + Other: 3 + 0 + 0

MSL F655 Phytoplankton Ecology, from Form to Function
2 Credits
Offered Spring Even-numbered Years
Introduction to the diversity and functioning of aquatic (marine and limnic) phytoplankton taxa in a wide sense. Topics will include various adaptations to the environment (life cycles, physiology). Four lab sessions will intensify the understanding of the covered topics and give students hands-on experience in analyzing phytoplankton samples on algal diversity and activity using modern techniques (fluorescence microscopy, flow cytometry, PAM fluorometry).

Recommended: Biological oceanography and/or graduate courses in algal ecology and aquatic ecosystems.
Lecture + Lab + Other: 1 + 2 + 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: MSL F660 or permission of instructor.
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 F670 Nutrient Dynamics
2 Credits
Offered Fall Odd-numbered Years
The dynamics of nitrogen, phosphorus and silicon cycles of the world oceans and the specific processes which transfer nutrients between ecosystems compartments. Analytical techniques employed in measurement of nutrient transfer rates.
Prerequisites: MSL F650 or MSL F660 or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 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 or permission of instructor.
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 or permission of instructor.
Cross-listed with FISH F680 and ANTH F680.
Lecture + Lab + Other: 0 + 0 + 5-16

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 M.B.A.
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 or equivalent; 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 the course 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 distinctives 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 or equivalent; 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  Concepts and Contemporary Applications of Mathematics (m)
3 Credits
Applications of mathematics in modern society. Topics include voting systems, management science, probability and statistics. Problem solving emphasized.
Prerequisites: DEVFM F105; or DEVFM F105N; or DEVFM F105J; or placement.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 3 + 0 + 0

MATH F122X  Precalculus for Business and Economics (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 students intending to take MATH F230X. Note: Credit may be earned for MATH F151X or MATH F122X, but not for both.
Prerequisites: DEVFM F105; or DEVFM F105N; or DEVFM F105J; or placement.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 3 + 0 + 0

MATH F151X  College Algebra for Calculus
4 Credits
Study of algebraic, logarithmic and exponential functions; system or 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: Previous W or grade below C- in MATH F151X; or placement into MATH F151X; or departmental recommendation.
Lecture + Lab + Other: 3 + 0 + 0

MATH F151S  College Algebra for Calculus Skills Workshop
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. This course requires concurrent enrollment in MATH F151X.
Prerequisites: Previous W or grade below C- in MATH F151X; or placement into MATH F151X; or departmental recommendation.
Lecture + Lab + Other: 0.7 + 1 + 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. This course requires concurrent enrollment in MATH F151X.
Prerequisites: Previous W or grade below C- in MATH F151X; or placement into MATH F151X; or departmental recommendation.
Lecture + Lab + Other: 0.7 + 1 + 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; or concurrent enrollment in MATH F151X; or placement.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 3 + 0 + 0

MATH F152S  Precalculus for Business Skills Workshop
1 Credit
Directed study of topics in MATH F152X, 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 and mathematics-based courses. Note: Credit may be earned for taking MATH F151R or MATH F151S, but not for both. This course requires concurrent enrollment in MATH F151X.
Prerequisites: Previous W or grade below C- in MATH F151X; or placement into MATH F151X; or departmental recommendation.
Lecture + Lab + Other: 0.5 + 1.5 + 0

MATH F156X  College Algebra for Calculus Skills Workshop
1 Credit
Directed study of topics in MATH F156X, 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 and mathematics-based courses. Note: Credit may be earned for taking MATH F151R or MATH F151S, but not for both. This course requires concurrent enrollment in MATH F151X.
Prerequisites: Previous W or grade below C- in MATH F151X; or placement into MATH F151X; or departmental recommendation.
Lecture + Lab + Other: 0.5 + 1.5 + 0
MATH F156R  Prep for Precalculus
1 Credit
An intensive, individualized review of prerequisite topics needed in precalculus 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. 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 F156X; or placement into MATH F156X; or departmental recommendation.
Lecture + Lab + Other: 0.7 + 1 + 0

MATH F156S  Precalculus Skills Workshop
1 Credit
Directed study of topics in precalculus, 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. This course requires concurrent enrollment in MATH F156X.
Prerequisites: Previous W or grade below C- in MATH F156X; or placement into MATH F156X; or departmental recommendation.
Lecture + Lab + Other: 0.5 + 1.5 + 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.
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
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 F230X  Calculus Essentials with Applications
3 Credits
An introduction to the key ideas of differential and integral calculus, and their uses in business, economics and the 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.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 3 + 0 + 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. This course requires concurrent enrollment in MATH F251X.
Prerequisites: Previous W or grade below C- in MATH F251X; or placement into MATH F251X; or departmental recommendation.
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: MATH F151X and MATH F152X; or MATH F156X; or placement.
Attributes: UAF GER Mathematics Req
Lecture + Lab + Other: 4 + 1 + 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; or concurrent enrollment in MATH F252X; or permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

MATH F301  Topics in Mathematics  
3 Credits  
Offered Spring  
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, Gelois theory, logic or other areas of mathematics. May be repeated with permission of instructor for a total of nine credits.

Prerequisites: MATH F252X; or MATH F314; or permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

MATH F302  Topics in Combinatorics  
3 Credits  
Offered Fall Odd-numbered Years  
Topics studied include classical ones such as primality, congruences, functions and characteristic functions.

Prerequisites: MATH F253X; or concurrent enrollment in MATH F252X; or permission of instructor.

Lecture + Lab + Other: 3 + 0 + 0

MATH F303  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 F252X; or MATH F265; or permission of instructor.

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; or permission of instructor.

Cross-listed with CS F307.

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; or permission of instructor.

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 or permission of instructor.

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 or permission of instructor.

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 F252X; or permission of instructor.

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 F252X.

Lecture + Lab + Other: 3 + 0 + 0
MATH F401  Introduction to Real Analysis  (W)
3 Credits
Offered Fall
Completeness of the real numbers and its consequences convergence of sequences and series, limits and continuity, differentiation, the Riemann integral.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; MATH F253X; MATH F265.
Lecture + Lab + Other: 3 + 0 + 0

MATH F404  Topology
3 Credits
Offered Fall Even-numbered Years
Introduction to topology, 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: ENGL F111X; ENGL F211X or ENGL F213X; MATH F265; or permission of instructor.
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, Gauss 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; or permission of instructor.
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 Spring
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; or permission of instructor.
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; MATH F252X; or permission of instructor.
Recommended: One or more of MATH F302; MATH F310; MATH F314; MATH F401; STAT F300; some programming experience.
Lecture + Lab + Other: 3 + 0 + 0

MATH F490  Senior Seminar  (O)
2 Credits
Offered Spring
Advanced topics selected from areas outside the usual undergraduate offerings. A substantial level of mathematical maturity is assumed.
Prerequisites: COMM F131X or COMM F141X; at least one of MATH F401 or MATH F405; senior standing.
Lecture + Lab + Other: 2 + 0 + 0

MATH F505  Alaska Math Consortium: Math Teachers K-12
4 Credits
Lecture + Lab + Other: 3 + 3 + 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
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; or permission of instructor.
Cross-listed with PHYS F611.
Lecture + Lab + Other: 3 + 0 + 0
MATH F612 Mathematical Physics
3 Credits
Offered Spring
Prerequisites: PHYS/MATH F611 or equivalent; or permission of instructor.
Cross-listed with PHYS F612.
Lecture + Lab + Other: 3 + 0 + 0

MATH F614 Numerical Linear Algebra
3 Credits
Offered Alternate Fall
Prerequisites: MATH F314 or equivalent; or permission of instructor.
Recommended: MATH F421 or MATH F401.
Lecture + Lab + Other: 3 + 0 + 0

MATH F615 Numerical Analysis of Differential Equations
3 Credits
Offered Alternate Spring
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; or permission of instructor.
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 or equivalent.
Recommended: MATH F422; MATH F641 or equivalent.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 4 + 0 + 0

MATH F645 Complex Analysis
4 Credits
Offered Spring Even-numbered Years
Prerequisites: MATH F641; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 4 + 0 + 0

MATH F658 Topics in Geometry
3 Credits
Offered Fall Even-numbered Years
Elective topics in geometry. Offering can 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.
Cross-listed with CS F661.
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; or permission of instructor.
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 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

MATH F692  Seminar
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

MATH F692P  Seminar
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

MATH F698  Non-Thesis Research/Project
1-6 Credits
Lecture + Lab + Other: 0 + 0 + 0

MATH F699  Thesis
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

ME F308  Measurement and Instrumentation
3 Credits
Offered Spring
Measurement theory and concepts. Includes sensors, transducers and complete measurement systems; input, output and processing of engineering parameters; telemetry, data acquisition and logging, and virtual instrument systems.
Prerequisites: ES F331.
Lecture + Lab + Other: 2 + 3 + 0

ME F313  Mechanical Engineering Thermodynamics
3 Credits
Offered Spring
Continuation of ES F346 including power and refrigeration cycles (Rankine, Brayton, Otto, and Diesel), compressible flow (isentropic, shock waves, and flow in ducts with friction), 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 F106X 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; or permission of instructor. Stacked with ME F602.
Lecture + Lab + Other: 3 + 0 + 0

ME F403  Machine Design
3 Credits
Offered Spring
Prerequisites: ES F331.
Lecture + Lab + Other: 3 + 0 + 0

Mechanical Engineering (ME)

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.
Prerequisite or Co-requisite: ES F301.
Prerequisites: ES F210.
Lecture + Lab + Other: 3 + 3 + 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 or permission of instructor.
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 or instructor permission.
Lecture + Lab + Other: 1.5 + 4.5 + 0

ME F408  Mechanical Vibrations
3 Credits
Offered Fall
Response of mechanical systems to internal and external forces. Free and forced vibration, random vibration. Discrete and continuous systems. Vibration parameter measurements and stability criteria.
Prerequisites: ES F201, ES F210, ES F301.
Lecture + Lab + Other: 2 + 2 + 0

ME F409  Controls
3 Credits
Offered Fall
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 F201; ES F301.
Lecture + Lab + Other: 2 + 2 + 0

ME F414  Heating, Ventilating and Air Conditioning Systems
3 Credits
Offered Fall
Introduction to the design of space conditioning systems. Moist air properties, building heating and cooling load, ventilating, air conditioning calculations. Fluids, pumps and piping designs. Fans and building air distribution.
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. Prerequisite or co-requisite: ME F308.
Prerequisites: ENGL 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; PHYS F103X (for Math and non-Physics science major); PHYS F211X (for Engineering, Math and Physics major); junior standing or permission of instructor.
Stacked with ME F640.
Lecture + Lab + Other: 3 + 0 + 0

ME F441  Heat and Mass Transfer
3 Credits
Offered Fall
Fundamental concepts of heat and mass transfer including steady state and transient conduction, laminar and turbulent free and forced convection, evaporation, condensation, ice and frost formation, black body and real surface radiation, and heat exchangers.
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 or permission of instructor.
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 or concurrent enrollment; 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. Prerequisite or co-requisite: ME F313.  
Prerequisites: ES F301, ES F341, 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; MATH F302  
Lecture + Lab + Other: 3 + 0 + 0

ME F453  Propulsion Systems  
3 Credits  
Offered Spring Even-numbered Years  
Prerequisites: ES F341.  
Lecture + Lab + Other: 3 + 0 + 0

ME F458  Energy and the Environment  
3 Credits  
Offered Fall Even-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 or equivalent; 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. Prerequisite or co-requisite: ME F441; or permission of instructor.  
Prerequisites: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X; senior standing.  
Lecture + Lab + Other: 1 + 0 + 0

ME F487  Design Project  
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. Prerequisite or co-requisite: ME F403.  
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; ME F441; ME F486; senior standing.  
Lecture + Lab + Other: 3 + 0 + 0

ME F498  Research  
1-6 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 or equivalent.  
Lecture + Lab + Other: 0 + 0 + 0

ME F601  Finite Element Analysis in Engineering  
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: ME F302; ME F408; or permission of instructor.  
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; or permission of instructor.  
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 or equivalent; 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 or equivalent; ME F408; graduate standing in
engineering.
Lecture + Lab + Other: 3 + 0 + 0

ME F617  Power Analysis
3 Credits
Offered Every Third Semester
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 As Demand Warrants
Theories of elasticity and plasticity for small and large deformations.
Applications to engineering problems.
Prerequisites: ES F331 or equivalent; 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 or equivalent; 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; PHYS F103X (for Math and non-Physics science
major); PHYS F211X (for Engineering, Math and Physics major); graduate
standing or permission of instructor.
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 or equivalent; 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 or equivalent; 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
Description of nanofluids, nanostructured materials and dispersion
in base fluids. Thermophysical properties: density, viscosity, thermal
conductivity and specific heat. Theoretical equations and empirical
correlations for properties. Principles of measurements of properties.
Fluid dynamic losses and pumping power required for nanofluid flow
in heat transfer systems. Experimental methods of determining the
convective heat transfer coefficient of nanofluids. Practical application
to heat exchangers in industries. Nanofluids flows in micro- and
nanochannels.
Prerequisites: ES F341; ME F441; graduate standing or permission of
instructor.
Stacked with ME F443.
Lecture + Lab + Other: 3 + 0 + 0

ME F656  Space Systems Engineering
3 Credits
A multidisciplinary team of students will perform a preliminary design
study of a major space system. Design considerations will include
requirements for project management, spacecraft 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 or permission of instructor.
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 or equivalent; MATH F201X;
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
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| ME F687     | Arctic Materials Engineering               | 3       | A study of engineering material performance at low temperatures. Prerequisites: Graduate standing or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0<br>ME F697 Individual Study 1-9 Credits Lecture + Lab + Other: 0 + 0 + 0<br>ME F698 Non-Thesis Research/Project 1-9 Credits Lecture + Lab + Other: 0 + 0 + 0<br>ME F699 Thesis 1-9 Credits Lecture + Lab + Other: 0 + 0 + 0

### Mechanics-Diesel/Heavy Equipment (MECN)

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| MECN F103   | Starting and Charging Systems              | 3       | 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<br>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<br>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<br>MECN F154 Diesel Fuel Injection 2 Credits Lecture + Lab + Other: 0 + 0 + 0<br>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<br>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       | 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 + 2 + 0<br>MECN F203 Basic Power Generations 3 Credits Portable 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: 1 + 2 + 0<br>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: 0.5 + 1 + 0<br>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<br>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<br>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<br>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<br>MECN F210 Hydraulics 3 Credits 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
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 officer 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 officer leadership 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 officer leadership that traces the Army’s successes and failures as it evolved from the Vietnam War to present, placing previous lessons on leadership and officer leadership 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: ENGL F111X; ENGL F211X or ENGL F213X; junior standing in MILS; permission of instructor.
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: COMM F131X or COMM F141X; junior standing in MILS; permission of instructor.
Lecture + Lab + Other: 3 + 2 + 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
**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  
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; or permission of instructor.  
**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; or permission of instructor.  
**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 or permission of instructor.  
**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** MIN F688.  
**Lecture + Lab + Other:** 1 + 0 + 0

**MPR F698**  Non-thesis Research/Project  
1-9 Credits  
**Lecture + Lab + Other:** 1-9 + 0 + 0

**MPR F699**  Thesis  
1-9 Credits  
**Lecture + Lab + Other:** 0 + 0 + 0

**Mining Applications and Technologies (AMIT)**

**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
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 F104  Mining Safety and Operations Laboratory
1 Credit
Prerequisites:
Lecture + Lab + Other: 0 + 3 + 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 or equivalent.
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 or equivalent; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 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 development and extraction of ore body.
Level intervals, size and location of ore passes, design and optimization.
Prerequisites: MIN F103; MIN F225; or permission of instructor.
Recommended: MATH F200X.
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
Prerequisites:
Offered Fall Odd-numbered Years
Elementary theory and principles of unit processes of liberation,
concentration and solid-fluid separation as applied to mineral
beneficiations.
Prerequisites: Junior standing or permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

MIN F370  Rock Mechanics
3 Credits
Prerequisites:
Offered Fall
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.
Co-requisite: 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; or permission of instructor.
Lecture + Lab + Other: 2 + 3 + 0

MIN F401  Mine Site Field Trips
1 Credit
Offered Fall
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 F407  Mine Reclamation and Environmental Management
3 Credits
Principles and practices of mine reclamation and waste disposal. Pre-
mining assessments and plans. Design of settling and tailings ponds and
waste impoundments. Stream bed restoration and revegetation.
Prerequisites: CHEM F106X; ENGL F111X; ENGL F211X or ENGL F213X or
permission of instructor.
Recommended: ES F341.
Lecture + Lab + Other: 3 + 0 + 0

MIN F408  Mineral Valuation and Economics
3 Credits
Introduction to engineering economics, ore sampling and reserve
calculations, and mine feasibility studies.
Prerequisites: COMM F131X or COMM F141X; GE F375 or MIN F301.
Lecture + Lab + Other: 3 + 0 + 0
MIN F409  Operations Research and Computer Applications in Mineral Industry
3 Credits
Fundamental concepts of probability and statistics and the use of operations research and computer techniques for understanding, analysis, forecasting and optimization of mining operations and systems.
Prerequisites: MIN F225; MIN F454 or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

MIN F415  Coal Preparation
3 Credits
Unit operations, flowsheets, washability characteristics and control by sink-float methods for coal preparation plants. Market requirements and economics of preparation.
Prerequisites: MIN F313 or graduate standing.
Lecture + Lab + Other: 2 + 3 + 0

MIN F443  Principles and Applications of Industrial Explosives
3 Credits
Types and properties of industrial explosives; systems of initiation; theories of blasting; designs of open pit bench blasting; designs of underground blasting/rounds; applications in mining, civil construction and other fields; blasting vibration, structural damage and their control; overbreak control; safe practices; safety regulations; blast hole drilling and drilling equipment.
Prerequisites: MIN F370 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

MIN F444  Accidents, Emergency and Safety Management in Mines
3 Credits
Offered Alternate Fall
Accident statistics, accident investigation and prevention, major provisions of current laws, rule-making procedures, mine fires and explosions, causes and prevention, loss control principles and methods, emergency evacuation, emergency response and emergency preparedness, safety management systems and behavioral science applications.
Prerequisites: MIN F302; MIN F454, concurrently.
Lecture + Lab + Other: 3 + 0 + 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
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.
Prerequisites: Junior, senior or graduate standing in Mining Engineering, Geological Engineering, or permission of instructor.
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 or permission of instructor.
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.
Co-requisites: MIN F490.
Prerequisites: Senior standing in mining engineering.
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. Note: Both MIN F489 and MIN F490 must be completed to fulfill the writing intensive requirement.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; 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. Note: Both MIN F489 and MIN F490 must be completed to fulfill the writing intensive requirement.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; MIN F301; MIN F302; MIN F370; MIN F454; MIN F489.
Lecture + Lab + Other: 1 + 4 + 0

MIN F601  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 or permission of instructor.  
Lecture + Lab + Other: 3 + 3 + 0  

MIN F635  Geostatistical Ore Reserve Estimation  
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 or equivalent; graduate standing; or permission of instructor.  
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 F409 or equivalent; 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 or equivalent; 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 or equivalent or 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.  
Prerequisites: MIN F370 or equivalent or permission of instructor.  
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 coal and hardrock mines, design underground coal mine plans and design of underground stopes, perform underground grade control.  
Prerequisites: Graduate standing in Mining Engineering or Geological Engineering; or permission of instructor.  
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.  
Prerequisites: 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. Students are required to perform research tasks associated with specimens or objects and their 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 a potential mentor before enrolling to determine whether matching opportunities exist.  
Prerequisite: Instructor permission.  
Lecture + Lab + Other: 1 + 0 + 3-6  

MRAP F293P  Special Topics  
1-8 Credits  
Lecture + Lab + Other: 1-8 + 0 + 0
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.  
Prerequisites: Sophomore standing or permission of instructor.  
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 F212 or permission of instructor.  
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 F212 or permission of instructor.  
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 and permission of instructor.  
Lecture + Lab + Other: 0 + 0 + 0

MSM F488  Individual Research: Field Collecting Museum Specimens  
3 Credits  
Philosophies, purposes and goals of field collection, procedures for collecting museum specimens, and methods of handling before they reach the museum. Field trips may be required. By arrangement with the appropriate curator(s). May be repeated for credit with permission of instructor.  
Prerequisites: MSM F211 and F212 and prior disciplinary preparation or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

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: 3 + 0 + 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; permission of instructor.  
Recommended: MUS F103X.  
Lecture + Lab + Other: 3 + 0 + 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; permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 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 symbolim 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: 3 + 0 + 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: 3 + 0 + 0
MUS F125X  
**Enjoying Jazz**  (h)
3 Credits
An introduction to the 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*: 3 + 0 + 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*: Music majors must be concurrently enrolled in MUS F133.
*Lecture + Lab + Other*: 3 + 0 + 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. Music majors must be concurrently enrolled in MUS F134.
*Prerequisites*: MUS F131 or equivalent.
*Lecture + Lab + Other*: 3 + 0 + 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*: Music majors must be concurrently enrolled in or have completed MUS F131.
*Lecture + Lab + Other*: 2 + 0 + 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 or equivalent; music majors must be concurrently enrolled in or have completed MUS F132.
*Lecture + Lab + Other*: 2 + 0 + 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 or equivalent, or concurrent enrollment.
*Lecture + Lab + Other*: 1 + 0 + 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)
1 Credit
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. Concurrent enrollment in MUS F190: Recital Attendance required.
*Prerequisites*: Admission by audition.
*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. Concurrent enrollment in MUS F190: Recital Attendance required.
*Prerequisites*: Admission by audition.
*Lecture + Lab + Other*: 2 + 0 + 0

MUS F190  
**Recital Attendance**
0 Credit
Recital and concert attendance.
*Lecture + Lab + Other*: 1 + 0 + 0

MUS F200X  
**Exploration 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 ENGL F111X or higher; sophomore standing; or permission of instructor.
*Attributes*: UAF Core Aesthetic Appreciation, UAF GER Arts Req
*Lecture + Lab + Other*: 3 + 0 + 0

MUS F203  
**Fairbanks Symphony Orchestra**
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

MUS F222  History of Western Music II  (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 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; or permission of instructor.
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; NORS 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 or equivalent; 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 or equivalent; music majors must be concurrently enrolled in or have completed MUS F234.
Lecture + Lab + Other: 2 + 0 + 0

MUS F233  Advanced Ear Training I  (h)
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; music majors must be concurrently enrolled in or have completed MUS F231.
Lecture + Lab + Other: 1 + 0 + 0

MUS F234  Advanced Ear Training II  (h)
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; music majors must be concurrently enrolled in or have completed MUS F232.
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  (h)
0 Credit
Final phase of piano proficiency requirement.
Prerequisites: MUS F154; or permission of instructor.
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. Concurrent enrollment in MUS F190: Recital Attendance required.
Prerequisites: Admission by audition.
Lecture + Lab + Other: 2 + 0 + 0

MUS F262     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. Concurrent enrollment in MUS F190: Recital Attendance required.
Prerequisites: Admission by audition.
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
Lecture + Lab + Other: 0 + 3-9 + 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 or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

MUS F351     Conducting     (O, h)     3 Credits
Principles of conducting; interpretation of vocal and instrumental ensemble music.
Prerequisites: COMM F131X or COMM 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. Special permission required. Note: Course may not be audited. Credit-No Credit grading not permitted. Concurrent enrollment in MUS F190: Recital Attendance required.
Prerequisites: Admission by audition.
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. Special permission required. Note: Course may not be audited. Credit-No Credit grading not permitted. Concurrent enrollment in MUS F190: Recital Attendance required.
Prerequisites: Admission by audition.
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. Begin offered 200801 so removed NP# cla 01/08
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.
Cross-listed with WGS F410.
Lecture + Lab + Other: 3 + 0 + 0

MUS F421     Music Before 1620     (W, h)     3 Credits
A study of music in the Western European tradition from its origins in Greek antiquity through the Renaissance and the emergence of opera in the early seventeenth century. The study includes prominent composers, early musical forms and genres, original sources in translation and developments in music notation and early musical instruments.
Prerequisites: ENGL F211X or ENGL F213X; MUS F222; or permission of instructor.
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: ENGL F211X or ENGL F213X; MUS F222; or permission of instructor.
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: ENGL F211X or ENGL F213X; MUS F222; or permission of instructor.
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: ENGL F211X or ENGL F213X; MUS F222; or permission of instructor.
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 or equivalent; or permission of instructor.

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 or permission of instructor.
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 score study, listening exercises and composition exercises.
Prerequisite: MUS F232 or permission of instructor.
Recommended: MUS F322.
Lecture + Lab + Other: 3 + 0 + 0

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 or equivalent; permission of instructor.
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 or permission of instructor.
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 or equivalent; audition; permission of instructor.
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. Special permission required. Note: Course may not be audited. Credit-No Credit grading not permitted. Concurrent enrollment in MUS F190: Recital Attendance required.
Prerequisites: Admission by audition.
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. Special permission required. Note: Course may not be audited. Credit-No Credit grading not permitted. Concurrent enrollment in MUS F190: Recital Attendance required.
Prerequisites: Admission by audition.
Lecture + Lab + Other: 2.4 + 0 + 0

MUS F476  Senior Project  
3 Credits
Offered As Demand Warrants
Preparation and presentation of a 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 or equivalent; MUS F390 or equivalent; 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 or equivalent, or permission of instructor.  
**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

MUS F635  Graduate Private Lessons in Composition  
2-4 Credits  
Private instruction in advanced music composition consisting of one private lesson per week. Repeatable for credit. Course may not be audited.  
**Prerequisites:** Graduate standing; MUS F433 or equivalent; audition; permission of instructor.  
**Recommended:** Familiarity with computer-assisted music score preparation software.  
*Lecture + Lab + Other:* 2,4 + 0 + 0

MUS F661  Advanced Private Lessons  
2,4 Credits  
Private instruction in piano, voice, or orchestral instruments consisting of one private lesson per week. Repeatable for credit. Course may not be audited. Graduate standing; MUS F462 or equivalent; audition.  
**Prerequisites:** Special permission required.  
*Lecture + Lab + Other:* 2,4 + 0 + 0

MUS F690  Graduate Recital  
0 Credit  
Full length solo performance recital.  
**Prerequisites:** MUS F490 or equivalent; graduate standing in applied music study; permission of instructor.  
*Lecture + Lab + Other:* 0 + 0 + 0

MUS F692  Seminar  
1-4 Credits  
**Lecture + Lab + Other:** 1-4 + 0 + 0

MUS F698  Non-Thesis Research/Project  
1-12 Credits  
**Lecture + Lab + Other:** 0 + 0 + 0

MUS F699  Thesis  
1-12 Credits  
**Lecture + Lab + Other:** 0 + 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:** ENGL 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:** ENGL F111X; ENGL F211X; 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
MUED F310  Practicum in Elementary Music Methods
1 Credit
Students will observe and reflect upon weekly fieldwork in elementary
public school classrooms, grades K-5. Additionally, students will
assist with and lead live classroom activities. For preservice music
Recommended: ED F201.
Lecture + Lab + Other: 0.5 + 1.5 + 0

MUED F315  Music Methods and Techniques
2 Credits
Instruction in voice and the basic instruments of band and orchestra.
Emphasis on teaching methods. Course may be repeated for credit. See
music department handbook.
Prerequisites: Permission of instructor.
Lecture + Lab + Other: 1 + 2 + 0

MUED F316  Practicum in Middle-Level Music Methods
1 Credit
Students will observe and reflect upon weekly fieldwork in grades 4-6
beginning instrumental music classes. Additionally, students will assist
with and lead live classroom activities. For preservice music educators.
Prerequisites: MUS F315; any music techniques/methods course plus
concurrent enrollment in a second MUS F315 course.
Recommended: ED F201.
Lecture + Lab + Other: 0.5 + 1.5 + 0

MUED F405  Secondary School Music Methods  (W)
3 Credits
Principles and methods of teaching music in junior and senior high
school with emphasis on philosophies, management, objectives, teaching
methods, choral and general music programs. Includes use of teaching
plans in classroom and rehearsal settings. Note: Should be taken prior to
ED F453.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; permission of
instructor.
Lecture + Lab + Other: 2 + 3 + 0

MUED F406  Practicum in Secondary Music Methods
1 Credit
Students will observe and reflect upon weekly fieldwork in a local middle
or high school. Additionally, students will assist with and lead live
classroom activities. For preservice music educators. Taken concurrently
with MUED F405, Secondary School Music Methods.
Lecture + Lab + Other: 0.5 + 1.5 + 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 ENGL 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 ENGL 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 sporophyte 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, corm 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 seeding and restoration practices, intermittent mist
propagation systems, spore propagation and commercial micro-
propagation (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, cloudberry, 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-
trailed 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 Spring
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 instrumentations 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; or permission of
instructor.
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 F300P Internship in Natural Resources Management
1-3 Credits
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, 3.0 GPA, permission of instructor, and an approved internship plan.
Lecture + Lab + Other: 0 + 0 + 1-3

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 ENGL F111X or higher; or permission of instructor.
Attributes: UAF GER Ethics Req
Lecture + Lab + Other: 3 + 0 + 0

NRM F312 Introduction to Range Management
3 Credits
Offered Fall 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; or permission of instructor.
Recommended: NRM F320; NRM F321.
Lecture + Lab + Other: 3 + 0 + 0

NRM F313 Introduction to Plant Pathology
4 Credits
Offered Spring Odd-numbered Years
Plant pathology; non-parasitic and parasitic causes of plant diseases; methods of plant infestation and mechanism of plant defenses; epidemiology and disease control.
Prerequisites: BIOL F115X; BIOL F116X.
Recommended: BIOL F239.
Lecture + Lab + Other: 3 + 3 + 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 rivers, 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 or equivalent; NRM F161 or equivalent; permission of instructor.
Recommended: NRM/GEOG F463 and NRM F465.
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: 3 + 0 + 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  
(W) 
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; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor. 
Lecture + Lab + Other: 2 + 3 + 0

NRM F403   Environmental Decision-Making  
(O, W) 
3 Credits 
Offered Fall  
Analysis of philosophical/ethical, economic, scientific and political foundations of diverse natural resource management perspectives.  
Prerequisites: COMM F131X or COMM F141X; NRM F101; junior standing; or permission of instructor. 
Lecture + Lab + Other: 3 + 0 + 0

NRM F405   Senior Thesis in Natural Resources Management I  
(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. Thesis proposal, presentation and research.  
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; NRM core; junior standing. 
Lecture + Lab + Other: 2 + 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 or permission of instructor. 
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 or permission of instructor. 
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; or permission of instructor. 
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; or permission of instructor. 
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 or permission of instructor. 
Lecture + Lab + Other: 2 + 3 + 0
NRM F454 Comparative Farming and Sustainable Food Systems
3 Credits
Offered Fall
Prerequisites: BIOL F371 or NRM F375 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
Cross-listed with GEOG F454 and CCS F454.

NRM F461 Interpretive Services
3 Credits
Offered As Demand Warrants
Prerequisites: A basic course in ecology, resource management, or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
Cross-listed with GEOG F464.

NRM F464 Wilderness Management
3 Credits
Offered Spring
Prerequisites: 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
Cross-listed with GEOG F464.

NRM F470 Terrestrial Carbon Management
3 Credits
Offered Spring
Prerequisites: BIOL F371 or NRM F375 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

NRM F480 Soil Management for Quality and Conservation
3 Credits
Offered Fall Odd-numbered Years
Prerequisites: NRM F380.
Lecture + Lab + Other: 3 + 0 + 0

NRM F483 Research Design, Writing and Presentation Methods
3 Credits
Offered Fall
Prerequisites: COMM F131X or COMM F141X; ENGL F211X or ENGL F213X; at least one writing intensive course designated (W); junior standing.
Cross-listed with GEOG F483.

NRM F484 Senior Thesis in Natural Resources Management
2 Credits
Offered Fall Odd-numbered Years
Prerequisites: NRM F383 and permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

NRM F485 Soil Biology
3 Credits
Offered Spring Even-numbered Years
Prerequisites: A course in biology or microbiology and a course in soils or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

NRM F488 Land Management of Ecosystems
3 Credits
Offered Spring As Demand Warrants
Prerequisites: NRM F211; NRM F277 or BIOL 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 ecological transect in selected areas of Alaska. Hands-on experiences on soil morphology and exposure 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. Student 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, or permission of instructor. Stacked with NRM F689.
Lecture + Lab + Other: 1 + 0 + 0

NRM F597  Individual Study
1-9 Credits
Lecture + Lab + Other: 0 + 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 or permission of instructor.
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 the autumn students meet to discuss their internship experiences and make public presentations.
Prerequisites: ANTH/BIOL/ECON/NRM F667; or ANTH/BIOL/ECON/NRM F668; or permission of instructor.
Cross-listed with ANTH F617; BIOL F613; ECON F613.
Lecture + Lab + Other: 2 + 0 + 0

NRM F616  Ecological Background for Resilience and Adaptation
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 student enrollment or permission of instructor.
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.
Prerequisites: Graduate standing or permission of instructor. Stacked with NRM F430.
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 or equivalent.
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 or equivalent.
Lecture + Lab + Other: 3 + 0 + 0

NRM F647  Global to Local Sustainability (a)
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; and permission of instructor.
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
Interdisciplinary exploration of theoretical and practical considerations of integrated assessment and adaptive management. 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. 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. In case of enrollment limits, 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 or permission of instructor.
Recommended: ANTH/BIOL/ECON/NRM F647 and ANTH/BIOL/ECON/NRM F667 (previously or concurrently).
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 and permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

NRM 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. Cross-listed with NRM F656 and GEOG F656
Prerequisites: Graduate standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

NRM F665  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 F666  Survey Reserach 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 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: Must be enrolled in the Resilience and Adaptation graduate program; or permission of instructor.
Recommended: ANTH/BIOL/ECON/NRM F647 (taken concurrently).
Cross-listed with ANTH F667; BIOL F667; ECON F667.
Lecture + Lab + Other: 2 + 0 + 0

NRM 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 that are 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; or permission of instructor.
Cross-listed with ANTH F668; BIOL F668; ECON F668.
Lecture + Lab + Other: 2 + 0 + 0

NRM F670  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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

NRM F672  Nutrient Cycling
3 Credits
Offered Spring Odd-numbered Years
Examination of physical, chemical and biological processes controlling nutrient element recycling, availability and retention in natural and managed ecosystems.
Prerequisites: CHEM F106X; NRM F375 or BIOL F375; NRM F380; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
NRM F675  Theoretical Forest Ecosystem Science
3 Credits
Offered Spring Even-numbered Years
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.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

NRM F676  Interdisciplinary Modeling of High Latitude Global Change (a)
4 Credits
Offered Fall Even-numbered Years
Introduces students to approaches to modeling how regional and global environmental change influences biological and social systems in high latitudes and how the responses of these systems influence the regional and global functioning of the earth system.
Prerequisites: STAT F200X or equivalent; graduate standing; or permission of instructor.
Cross-listed with BIOL F676.
Lecture + Lab + Other: 3 + 3 + 0

NRM F685  Soil Microbiology and Biochemistry
3 Credits
Offered As Demand Warrants
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.
Prerequisites: At least one course in soil science; one course in microbiology; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

NRM F688  Land Management of Ecosystems
3 Credits
Offered Spring As Demand Warrants
Natural resource topics related to 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 or BIOL F277; NRM F375 or BIOL F371.
Stacked with NRM F488.
Lecture + Lab + Other: 3 + 0 + 40

NRM F689  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, or permission of instructor.
Stacked with NRM F489.
Lecture + Lab + Other: 1 + 0 + 0

NRM 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 or permission of instructor.
Cross-listed with GEOG F692.
Lecture + Lab + Other: 1-3 + 0 + 0

NRM F698  Non-Thesis Research/Project
1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

NRM F699  Thesis
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

NRM F699A  Thesis
1-12 Credits
Lecture + Lab + Other: 1-12 + 0 + 0

NRM F699B  Thesis
1-12 Credits
Lecture + Lab + Other: 1-12 + 0 + 0

NRM F699C  Thesis
1-12 Credits
Lecture + Lab + Other: 1-12 + 0 + 0

Northern Studies (NORS)

NORS 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

NORS 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
NORS 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  
NORS 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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.  
Cross-listed with ART F425.  
Stacked with ART F625.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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; or permission of instructor.  
Cross-listed with GEOG F427.  
Stacked with GEOG F627; NORS F627.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS F449  Northern and Environmental Literature  (h, a)  
3 Credits  
Intensive study of particular aspects of Alaska and circumpolar writing, ecocritical theory and the literature of environmental studies.  
Prerequisites: ENGL F211X; or ENGL F213X; or permission of instructor.  
Cross-listed with ENGL F449.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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, or permission of instructor.  
Cross-listed with ANTH F470.  
Stacked with ANTH F670; NORS F670.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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 2 NORS courses.  
Prerequisite: ENGL F111X; ENGL F211X or ENGL F213X; COMM F131X or COMM F141X; junior standing or permission of the instructor.  
Cross-listed with RUSS F476.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS F484  Seminar in Northern Studies  (O, W, s, a)  
3 Credits  
Offered Fall  
An interdisciplinary seminar focusing on topics relating to the North with emphasis on the physical sciences, the peoples, and the socioeconomic and political aspects of the area. Specialists in the various fields will assign readings and conduct discussions.  
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS F492  Seminar  1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0  
NORS F492P  Seminar  1-6 Credits  
Lecture + Lab + Other: 0 + 0 + 0  
NORS F600  Perspectives on the North  (a)  
3 Credits  
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 HIST F600.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS F601  Research Methods and Sources in the North  (a)  
3 Credits  
Development of students’ research skills so they can engage in their own research on northern issues. Includes techniques of interviewing, conducting surveys, and sampling; qualitative and quantitative methods of research design; and familiarity with library sources and archival records. Each student will develop a research project. Course is also available online.  
Lecture + Lab + Other: 3 + 0 + 0
NORS F603  Public Policy   (a) 
3 Credits
Offered Spring Even-numbered Years
The processes of policy development, implementation and change are analyzed along 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 skills in research design preparing them to analyze public policy.
Prerequisites: Graduate Standing.
Cross-listed with PS F603.
Stacked with PS F403.
Lecture + Lab + Other: 3 + 0 + 0

NORS F610  Northern Indigenous People and Contemporary Issues   (a) 
3 Credits
Offered Fall Odd-numbered Years
Comparative examination of issues affecting northern indigenous people from Alaska, Canada, Greenland and Russia. Issues include the impact of the alienation of land on which these people depend; the relationships 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 toward indigenous peoples and contrasting world views.
Prerequisites: Graduate standing or upper-division standing with permission of instructor.
Cross-listed with ANTH F610.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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 or permission of instructor.
Stacked with HIST F411.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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 in northern climates; and the symbolism of settings and effects on political controversies.
Prerequisites: Graduate standing.
Lecture + Lab + Other: 3 + 0 + 0

NORS F620  Images of the North   (a) 
3 Credits
Emphasis on the variety of images created about the people and environment of the circumpolar North. Examination and interpretation of conceptualizations of the North as expressed in such different media as film, art, literature, travel journals and oral traditions.
Cross-listed with ENGL F620.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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 (ART F161, ART F162, ART F163, ART F205, ART F211, ART F213 or JRN F203).
Cross-listed with ART F624.
Stacked with ART F424.
Lecture + Lab + Other: 3 + 0 + 0

NORS F625  Visual Images of the North   (a) 
3 Credits
Examination of the two-dimensional imagery of the people and landscapes of the polar regions, centering on such issues as depiction of Arctic peoples and customs by Europeans, documentary vs. 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.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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; or permission of instructor.
Cross-listed with GEOG F627.
Stacked with NORS F427; GEOG F427.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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.
Cross-listed with JRN F640.
Stacked with JRN F440.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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 or permission of instructor.
Cross-listed with PS F647.
Stacked with PS F447.
Lecture + Lab + Other: 3 + 0 + 0
NORS 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 or permission of instructor.  
Cross-listed with PS F648.  
Stacked with: PS F448.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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 or permission of instructor.  
Cross-listed with PS F652.  
Stacked with PS F452.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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; permission of instructor.  
Recommended: Undergraduate course in international law, organization or politics.  
Cross-listed with PS F654.  
Stacked with PS F454.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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 and permission of instructor.  
Cross-listed with PS F655.  
Stacked with PS F455.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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 or permission of instructor.  
Recommended: PS F101.  
Cross-listed with PS F656.  
Stacked with PS F456.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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 or permission of instructor.  
Recommended: PS F201X or equivalent.  
Cross-listed with PS F658.  
Stacked with PS F458.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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.  
Prerequisites: Graduate standing or permission of instructor.  
Cross-listed with PS F660.  
Stacked with PS F460.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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 F661.  
Stacked with HIST F461.  
Lecture + Lab + Other: 3 + 0 + 0  
NORS 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 or permission of instructor.  
Cross-listed with PS F662.  
Stacked with PS F462.  
Lecture + Lab + Other: 3 + 0 + 0
NORS 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 or permission of instructor.
Cross-listed with HIST F663.
Stacked with HIST F463.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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 or permission of instructor.
Cross-listed with HIST F664.
Stacked with HIST F464.
Lecture + Lab + Other: 3 + 0 + 0

NORS F668 Government and Politics of Russia (a)
3 Credits
Offered Spring Odd-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, 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 or permission of instructor.
Cross-listed with PS F668.
Stacked with PS F468.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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, or permission of instructor.
Cross-listed with ANTH F670.
Stacked with ANTH F470; NORS F470.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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 or permission of instructor.
Cross-listed with ANTH F672.
Stacked with ANTH F472.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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.Stacked with HIST F481
Prerequisites: Graduate standing or permission of instructor.
Cross-listed with HIST F681.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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 or permission of instructor.
Cross-listed with HIST F683.
Stacked with HIST F483.
Lecture + Lab + Other: 3 + 0 + 0

NORS 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; or permission of instructor.
Stacked with HIST F490.
Lecture + Lab + Other: 1 + 3 + 0

NORS F692 Seminar 3 Credits
Lecture + Lab + Other: 0 + 0 + 0

NORS F696 Grad Extnd Reg 0 Credit
Lecture + Lab + Other: 0 + 0 + 0

NORS F698 Non-Thesis Research/Project 1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0

NORS F699 Thesis 1-12 Credits
Lecture + Lab + Other: 0 + 0 + 0
Occupational Safety and Health (OSH)

OSH F108  Injury Prevention and Risk Management
4 Credits
Offered Fall
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.
Lecture + Lab + Other: 3 + 2 + 0

OSH F110  Program Assessments, Development and Implementation
4 Credits
Offered Fall
Examines the role of a safety program in the workplace. Emphasis on program assessment, design, development, implementation and evaluation of safety programs.
Lecture + Lab + Other: 4 + 0 + 0

OSH F120  Safety Program Management and Recordkeeping
3 Credits
Offered Spring
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.
Prerequisites: OSH F110.
Lecture + Lab + Other: 3 + 0 + 0

OSH F180  Introduction to Industrial Hygiene
4 Credits
Offered Spring
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.
Prerequisites: PRT F110.
Lecture + Lab + Other: 3 + 2 + 0

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 or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PLS F210  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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of the instructor.
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. Prerequisite or Co-requisite: ES F346.
Prerequisites: 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 log interpretation.  
Prerequisites: PETE F301; or permission of instructor.  
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: ENGL F111X; ENGL F211X or ENGL F219X or permission of instructor; 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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; concurrent enrollment in PETE F426.  
Lecture + Lab + Other: 0 + 3 + 0

PETE F421  Reservoir Characterization  
3 Credits  
Offered Spring  
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 methods.  
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 or permission of instructor.  
Lecture + Lab + Other: 0 + 0 + 0

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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; ES F341; PETE F426.  
Lecture + Lab + Other: 2 + 3 + 0  

PETE F487  Petroleum Project Design  
2 Credits  
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: COMM F131X or F141X; ENGL F111X; ENGL F211X or F213X; senior standing.  
Lecture + Lab + Other: 2 + 0 + 0  

PETE F487A  Petroleum Project Design  
1 Credit  
Offered Fall  
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. Note: Oral communication intensive and writing intensive credits are earned upon successful completion of PETE F487B.  
Prerequisites: Senior standing; PETE F407 or PETE F426; PETE F476.  
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: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; senior standing.  
Lecture + Lab + Other: 2 + 0 + 0  

PETE F489  Reservoir Simulation  
2 Credits  
Offered Fall  
The theory and use 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 F608  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 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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

PETE F621  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: Graduate standing in Petroleum Engineering; or permission of instructor.  
Stacked with PETE F421.  
Lecture + Lab + Other: 3 + 0 + 0  

PETE F630  Water Flooding  
3 Credits  
Offered As Demand Warrants  
A study of the fundamental concepts and procedures for the design of waterflooding processes in petroleum reservoirs.  
Prerequisites: PETE F301; PETE F476; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

PETE F645  Petroleum Geology  
3 Credits  
Offered Alternate Fall Even-numbered Years  
Examines the origin of petroleum, the geologic controls on its distribution and accumulation and the basic tools used for exploration and exploitation, including subsurface mapping, well logging, and exploration geophysics.  
Prerequisites: Graduate standing or permission of the instructor.  
Cross-listed with GEOS F645.  
Lecture + Lab + Other: 3 + 0 + 0
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>PETE F656</td>
<td>Advanced Petroleum Economic Analysis</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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; or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F661</td>
<td>Applied Well Testing</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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; or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F662</td>
<td>Enhanced Oil Recovery</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>Secondary and tertiary oil recovery processes, including waterflooding and chemical and thermal recovery methods. Prerequisites: PETE F476 or PETE F610 or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F663</td>
<td>Applied Reservoir Simulation</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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, or permission of instructor. Prerequisites: Reservoir Engineering course, e. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F665</td>
<td>Advanced Phase Behavior</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>The development and application of phase equilibrium simulators to predict fluid properties for reservoir fluids. Prerequisites: PETE F301 or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F666</td>
<td>Drilling Optimization</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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 or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F670</td>
<td>Fluid Flow Through Porous Media</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>The study of transport phenomena in porous media and application to petroleum engineering. Prerequisites: PETE F301; PETE F476; or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F680</td>
<td>Horizontal Well Technology</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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; or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F683</td>
<td>Natural Gas Processing and Engineering</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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; or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F685</td>
<td>Non-Newtonian Fluid Mechanics</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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 swab pressure models for plugged and open-end pipes. Prerequisites: ES F341; PETE F426 or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F687</td>
<td>Experimental and Data Analysis Methods in Petroleum Engineering</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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; or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F689</td>
<td>Multiphase Fluid Flow in Pipes</td>
<td>3</td>
<td>Offered as Demand Warrants</td>
<td>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; or permission of instructor. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>PETE F692</td>
<td>Seminar</td>
<td>1-3</td>
<td>Offered</td>
<td>Prerequisites eagerly awaited (Bingham plastic fluids, fluids without yield stress), couette flow analysis of non-Newtonian fluids, surge and swab pressure models for plugged and open-end pipes. Prerequisites: Graduate standing; or permission of instructor. Lecture + Lab + Other: 0 + 0 + 0</td>
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</tbody>
</table>
PETE F692P  Seminar  
1-3 Credits  
Lecture + Lab + Other: 0 + 0 + 0  
PETE F698  Non-Thesis Research/Project  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0  
PETE F699  Thesis  
1-9 Credits  
Lecture + Lab + Other: 0 + 0 + 0  

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  
Lecture + Lab + Other: 3 + 0 + 0  
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  
Lecture + Lab + Other: 3 + 0 + 0  
PHIL F108  Critical Thinking  (h)  
3 Credits  
Offered As Demand Warrants  
Examines the difference between science and pseudoscience, making use of the tools of critical thinking to understand what counts as knowledge. Examples are drawn from evolutionary theory, creationism, astronomy, astrology, history, race theory and Holocaust revisionism.  
Prerequisites: PHIL F102X; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
PHIL F110  Introduction to Political Philosophy  (h)  
3 Credits  
Offered Fall Odd-numbered Years  
Introduction to historical and contemporary issues in political thought. Topics and themes vary, but include questions such as: Should we consent to be governed? What is civil society? What does it mean to be a citizen? What are the basic forms of government?  
Lecture + Lab + Other: 3 + 0 + 0  
PHIL F202  Introduction to Eastern Philosophy  (h)  
3 Credits  
Offered Spring  
Basic assumptions, problems and systems of the major philosophical traditions of the Far East.  
Prerequisites: PHIL F102X; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  
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: Two courses in the Perspectives on the Human Condition baccalaureate core.  
Prerequisites: Placement in ENGL F111X or higher; junior standing; or permission of instructor.  
Attributes: UAF GER Ethics Req  
Lecture + Lab + Other: 3 + 0 + 0  
PHIL F341  Theories of Knowledge  (O, h)  
3 Credits  
Offered Fall Even-numbered Years  
The nature of knowledge, truth and certainty.  
Prerequisites: COMM F131X or COMM 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 or equivalent.  
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 or equivalent.  
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 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: ENGL F111X; ENGL F211X or ENGL F213X or permission of
instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; 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
Political ideas from ancient Greece, Rome, and the Judaeo-Christian
tradition. Theories of Plato, Aristotle, Cicero, Augustine and Aquinas.
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X
or ENGL F213X; PHIL F102X; PS F101; or permission of instructor.
Cross-listed with PS F411.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F412  Modern Political Theory  (W, s)
3 Credits
Offered Spring
Political ideas from the Renaissance to the modern world. Theories of
Machiavelli, Hobbes, Locke, Rousseau, Burke, Marx and Lenin.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; PHIL F102X;
PS F101; or permission of instructor.
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. PS F101, upper division standing or permission of instructor.
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,
arquitecture and other arts; studies in relation to artistic production and
the role of art in society.
Prerequisites: Junior/senior standing or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHIL F471  Contemporary Philosophical Problems  (h)
3 Credits
Offered Fall Even-numbered Years
Ideological issues facing the modern world.
Prerequisites: PHIL F351; PHIL F352; or permission of instructor.
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 equivalent or PS F321; or permission of
instructor.
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 ENGL F111X or higher; placement in DEVFM 105 or higher; or permission of instructor.
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 ENGL F111X or higher; placement in DEVFM 105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F104X  College Physics II (n) 4 Credits
Offered Spring
Coulomb's Law, electrical potential, capacitance, Kirchoff's Laws, magnetic fields, Faraday's Law, electromagnetic waves, physical and geometrical optics, waves and particles, atomic and nuclear physics. For mathematics, science and liberal arts majors.
Prerequisites: PHYS F103X; placement in ENGL F111X or higher; placement in DEVFM 105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F105X  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 ENGL F111X or higher; placement in DEVFM 105 or higher; or permission of instructor.
Recommended: DEVFM 105.
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 ENGL F111X or higher; placement in DEVFM 105 or higher; or permission of instructor.
Attributes: UAF GER Natural Science Req
Lecture + Lab + Other: 3 + 3 + 0

PHYS F1L  Physics Elective (Lab Only) 1-12 Credits
Lecture + Lab + Other: 0 + 0 + 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 ENGL F111X or higher; or permission of instructor.
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 ENGL F111X or higher; or permission of instructor.
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 ENGL F111X or higher; MATH F252X; MATH F253X; PHYS F211X; PHYS F212X; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 3 + 0

PHYS F2L  Physics Elective (Lab Only)
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 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, linear 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; or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; PHYS F213X; or permission of instructor.
Lecture + Lab + Other: 1 + 6 + 0

PHYS F382  Physics Laboratory  (W, n)
3 Credits
Offered Spring
Laboratory experiments in classical and modern physics.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; PHYS F213X; or permission of instructor.
Lecture + Lab + Other: 1 + 6 + 0

PHYS F3L  Physics Elective (Lab Only)
1-12 Credits
Lecture + Lab + Other: 0 + 0 + 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 F212X, PHYS F301; or permission of the instructor.
Lecture + Lab + Other: 0 + 0 + 0

PHYS F413  Atmospheric Radiation
3 Credits
Offered Fall Odd-numbered Years
Atmospheric radiation including the 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/Co-requisites: ATM F401.
Cross-listed with ATM F413.
Stacked with PHYS F613 and ATM F613.
Lecture + Lab + Other: 3 + 0 + 0
PHYS F421 Quantum Mechanics (n) 4 Credits Offered Fall
Schrödinger'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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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. Recommended: PHYS F341; PHYS F342
Prerequisites: PHYS F220; PHYS F301; or permission of the instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

PHYS F472Z  Advanced Topics in Physics II: Current Topics in Physics 1 Credit
Offered as Demand Warrents
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,
quaternion mechanics.) (+0)
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 F497  Individual Study 1-9 Credits
Lecture + Lab + Other: 0 + 0 + 0

PHYS F4L  Physics Elective (Lab Only) 1-12 Credits
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; or permission of the instructor.  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F611  Mathematical Physics  
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 and hypercomplex numbers.  
Prerequisites: MATH F302; MATH F314; MATH F421; MATH F422; or permission of instructor.  
Cross-listed with MATH F611.  
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F612  Mathematical Physics  
3 Credits  
Offered Spring  
Prerequisites: PHYS/MATH F611 or equivalent; or permission of instructor.  
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/co-requisites: ATM F601; graduate standing.  
Cross-listed with ATM F613.  
Stacked with PHYS F413 and ATM F413.  
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F614  Ice Physics  
3 Credits  
Offered Spring Even-numbered Years  
A survey of the physics of ice, including the crystal structure and properties of ice, high pressure phases, hydrogen bonding, mechanical properties, thermal properties, electrical and acoustic properties, nucleation and growth, optical properties and surface properties (adhesion, friction).  
Prerequisites: MATH F421; MATH F422; graduate standing; or permission of instructor.  
Cross-listed with GEOS F614.  
Lecture + Lab + Other: 3 + 0 + 0  

PHYS F621  Classical Mechanics  
3 Credits  
Offered Fall Odd-numbered Years  
Lagrange's equations, two-body problem, rigid body motion, special relativity, canonical equations, transformation theory, and Hamilton-Jacobi method.  
Prerequisites: Graduate standing or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.  
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F627  Advanced Plasma Physics
3 Credits
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 or equivalent; graduate standing; or permission of instructor.
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 or equivalent; familiarity with a programming language such as C or Fortran; graduate standing; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F630  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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F631  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 or the equivalent; graduate standing; or permission of instructor.
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 or the equivalent; graduate standing; or permission of instructor.
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 and 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 or permission of instructor. 
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 and precipitate 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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
PHYS F651  Quantum Mechanics
3 Credits
Offered Fall Even-numbered Years
Schrodinger'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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F652  Quantum Mechanics
3 Credits
Offered Spring Odd-numbered Years
Schrodinger'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 or the equivalent; graduate standing; or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PHYS F692  Seminar
1 Credit
Lecture + Lab + Other: 0 + 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 ENGL F111X or higher or permission of instructor.
Attributes: UAF Core Political Economy, UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

PS F101  Introduction to American Government and Politics  (s)
3 Credits
Principles, institutions and practices of American national government; the Constitution, federalism, interest groups, parties, public opinion and elections.
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 F203  Peace, War and Security  (s)
3 Credits
Offered Fall Even-numbered Years
Introduction to the major challenges of maintaining a peaceful and secure world. What are the major threats to our security and how are they met? The course analyzes political, cultural, moral and legal norms surrounding war and terrorism and different means of organizing for peace and security.
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 NORS F205.
Lecture + Lab + Other: 3 + 0 + 0
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 F222  Political Science Research Methods    (s)  
3 Credits  
Offered Fall 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 F101; 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 ENGL F111X or higher; junior standing; or permission of instructor.  
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 F101 or permission of instructor.  
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 F101 or permission of instructor.  
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 F101 or permission of instructor.  
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: ENGL F111X; ENGL F211X or ENGL F213X; PS F101; or permission of instructor.  
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 F101; or permission of instructor.  
Recommended: HIST F131; HIST F132X.  
Lecture + Lab + Other: 3 + 0 + 0

PS F321  International Politics    (s)  
3 Credits  
Offered Fall  
Introduction to the problems, literature and terminology of international relations. Provides a basis for understanding current international affairs. Examines relations between nations, regions and groups, as well as ideas of conflict, security, trade, technology, negotiation, cooperation, revolution, modernization and community.  
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: COMM F131X or COMM F141X; PS F321; or permission of instructor.  
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 or permission of instructor.  
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, 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 or permission of instructor.  
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 will 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 or permission of instructor.  
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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.  
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 F101, upper division standing, or permission of instructor.  
Stacked with PS F603.  
Lecture + Lab + Other: 3 + 0 + 0

PS F411 Classical Political Theory (O, W, h)  
3 Credits  
Offered Fall Odd-numbered Years  
Prerequisites: COMM F131X or COMM F411X; ENGL F111X; ENGL F211X or ENGL F213X; PHIL F102X; PS F101; or permission of instructor.  
Cross-listed with PHIL F411.  
Lecture + Lab + Other: 3 + 0 + 0

PS 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: ENGL F111X; ENGL F211X or ENGL F213X; PHIL F102X; PS F101; or permission of instructor.  
Cross-listed with PHIL F412.  
Lecture + Lab + Other: 3 + 0 + 0

PS 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 F101, upper division standing or permission of instructor.  
Cross-listed with PHIL F414.  
Lecture + Lab + Other: 3 + 0 + 0

PS 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: any one or more of the following: PS F101; TM F112; TM F201; HIST F110 or permission of instructor.  
Recommended: PS F263.  
Cross-listed with ANS F425.  
Lecture + Lab + Other: 3 + 0 + 0

PS F435 Constitutional Law I: Federalism (W, s)  
3 Credits  
Offered Spring Odd-numbered Years  
Constitutional doctrines and historical evolution of federalism and the separation of powers in the United States. Emphasis on the court's role in arbitrating intergovernmental and interbranch disputes, the constitutional status of the administrative bureaucracy, and the control of war power and foreign policy.  
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; PS F101; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

PS F436 Constitutional Law II: Civil Rights and Liberties (W, s)  
3 Credits  
Offered Spring Even-numbered Years  
Origin and development of civil rights and civil liberties in the U.S. Emphasis on the social, political and philosophical justifications of rights as expressed in judicial decision and constitutional doctrine.  
Prerequisites: ENGL F111X; ENGL F211X or F213X; PS F101; or permission of instructor.  
Recommended: PS F303.  
Lecture + Lab + Other: 3 + 0 + 0
PS F437  United States Foreign Policy  (s, a)  
3 Credits  
Offered Spring Even-numbered Years  
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. Examines the historical background of the U.S. role in the world today and leading personalities and events that are a part of it.  
Prerequisites: PS F321; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F447  U.S. Environmental Politics  (s, a)  
3 Credits  
Offered Spring  
Examination of 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: Upper-division standing or permission of instructor.  
Recommended: PS F101.  
Stacked with NORS F647; PS F647.  
Lecture + Lab + Other: 3 + 0 + 0  

PS 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 or permission of instructor.  
Cross-listed with ANS F450.  
Stacked with PS F650.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F452  International Relations of the North  (s, a)  
3 Credits  
Offered Spring Odd-numbered Years  
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. Stacked with NORS F652; PS F652.  
Prerequisites: Upper-division standing or permission of instructor.  
Stacked with NORS F652.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F454  International Law and the Environment  (s)  
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: Upper-division standing; permission of instructor.  
Recommended: Undergraduate course in international law, organization, or politics.  
Stacked with NORS F654; PS F654.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F455  Political Economy of the Global Environment  (O, s)  
3 Credits  
Offered Fall Even-numbered Years  
Interaction 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: COMM F131X or COMM F141X; upper-division standing; permission of instructor.  
Stacked with NORS F655; PS F655.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F456  Science, Technology, and Politics  (O, s)  
3 Credits  
Offered Spring Odd-numbered Years  
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: COMM F131X or COMM F141X; upper-division standing or permission of instructor.  
Recommended: PS F101.  
Stacked with NORS F656; PS F656.  
Lecture + Lab + Other: 3 + 0 + 0  

PS F458  Comparative Environmental Politics  (s)  
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, and climate warming. Explores how state-society relations, political institutions, national political capacity, political processes and organizations, and international commitments potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.  
Prerequisites: Upper-division standing; or permission of instructor.  
Recommended: PS F201X or equivalent.  
Stacked with NORS 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: ENGL F111X; ENGL F211X or ENGL F213X; PS F201X; upper-division standing; or permission of instructor.  
Stacked with NORS F660; PS F660.  
Lecture + Lab + Other: 3 + 0 + 0
PS F462  Alaska Government and Politics  (s, a)
3 Credits
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. Stacked with: NORS F662; PS F662.
Prerequisites: Upper-division standing or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; PS F201X; or permission of instructor.
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 governance 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: ENGL F111X; ENGL F211X or ENGL F213X; PS F201X or HIST F102X; or permission of instructor.
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, 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: ENGL F111X; ENGL F211X or ENGL F213X; PS F201X; or permission of instructor.
Stacked with NORS 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 the broader human interest? How does morality relate to the international legal order? Examination is through theory and case studies.
Prerequisites: PHIL F322X or equivalent or PS F321; or permission of instructor.
Cross-listed with PHIL F472.
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: ENGL F111X; ENGL F211X or ENGL F213X; PS F101; or 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 along 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 skills in research design preparing them to analyze public policy.
Prerequisites: Graduate Standing.
Cross-listed with NORS F603.
Stacked with PS F403.
Lecture + Lab + Other: 3 + 0 + 0

PS F647  U.S. Environmental Politics  
3 Credits
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 or permission of instructor.
Cross-listed with NORS 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.
Stacked with: PS F450; ANS F450.
Lecture + Lab + Other: 3 + 0 + 0
Prerequisites: Graduate standing or permission of instructor.
Recommended: Undergraduate course in international law, organization, or politics.
Cross-listed with NORS F654.
Stacked with PS F454.
Lecture + Lab + Other: 3 + 0 + 0

PS F655 Political Economy of the Global Environment
3 Credits
Offered Fall Odd-numbered Years
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 or permission of instructor.
Cross-listed with NORS F655.
Stacked with PS F455.
Lecture + Lab + Other: 3 + 0 + 0

PS F656 Science, Technology, and Politics
3 Credits
Relationship between science, technology and politics. Connections among scientific knowledge, technology, political developments and power. Both historical and comparative aspects are included. Course is also available online.
Prerequisites: Graduate standing or permission of instructor.
Recommended: PS F101.
Cross-listed with NORS F656.
Stacked with PS F456.
Lecture + Lab + Other: 3 + 0 + 0

PS F658 Comparative Environmental Politics
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 and climate warming. Explores how state-society relations, political institutions, national political capacity, political processes and organizations, and international commitments potentially shape the nature and dynamics of global environmental politics and vice versa. Course is also available online.
Prerequisites: Graduate standing or permission of instructor.
Recommended: PS F201X or equivalent.
Cross-listed with NORS F658.
Stacked with PS F458.
Lecture + Lab + Other: 3 + 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:** ENGL F111X; any 100-level MATH.  
**Lecture + Lab + Other:** 3 + 2 + 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. Special fees apply.  
**Recommended:** ENGL 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; or permission of instructor.  
**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; or permission of instructor.  
**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 or higher; or permission of instructor.  
**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 F160  Oil and Gas Exploration and Production I
3 Credits
Surveys oil and gas exploration and production issues including marketing, geology, reservoir economics, legal aspects of resource ownership, drilling and production technologies, product separation, safety and environmental issues. Course may not be audited.
Prerequisites: Must be enrolled in the PRT program or permission of Program Chair.
Lecture + Lab + Other: 3 + 0 + 0
PRT F230  Process Technology II: Systems
4 Credits
Integration of equipment concepts to show how the individual components interact as part of a system and how each system works within an entire processing facility. Emphasis on the common systems found in each Alaska process industry. Systems topics include upstream oil and gas productions, petrochemicals and refinery processes, refrigeration, power generation, milling, boilers and heaters, coolers and heat exchangers.
Prerequisites: PRT F130.
Lecture + Lab + Other: 3 + 2 + 0
PRT F231  Process Technology III: Operations
4 Credits
Duties and responsibilities of the process operator on the job. Includes the details of normal operation, upset conditions, emergency action plans, startups, shutdowns, operating modes, turnarounds and routing maintenance activity.
Prerequisites: PRT F230.
Lecture + Lab + Other: 3 + 2 + 0
PRT F240  Industrial Process Instrumentation III
3 Credits
Offered As Demand Warrants
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; or permission of instructor.
Recommended: MATH F113X or higher.
Lecture + Lab + Other: 2 + 2 + 0
PRT F248  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 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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PSY F245  Child Development (s)
3 Credits
Physical, cultural, emotional, cognitive and social aspects of a child’s development from the 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. Cross-listed with ED F245
Prerequisites: ENGL F111X or permission of instructor.
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 F100X or SOC F201X; or permission of instructor.
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 or permission of instructor.
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, multiculturial 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; or permission of instructor.
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; or permission of instructor.
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 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 F100X; or SOC F201X or PSY F101X or WGS F201X; or permission of instructor.
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. Recommended: BIOL F112X or BIOL F116X
Prerequisites: COMM F131X or COMM F141X; PSY F101X, PSY F275, can be concurrent; or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; PSY F101X; or permission of instructor.
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; or permission of instructor.
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: COMM F131X or COMM F141X; PSY F101X or WGS F201X; or permission of instructor.
Recommended: PSY F275 or SOC F373.
Cross-listed with WGS F360.
Lecture + Lab + Other: 3 + 0 + 0
Prerequisites:

- PSY F101X, or permission of instructor.
- 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:** COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; PSY F101X; PSY F250 or equivalent; PSY F275 or equivalent or permission of the instructor.

**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; or permission of instructor.

**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:** ENGL F111X; ENGL F211X or ENGL F213X; PSY F101X; PSY F275; 9 credits of psychology courses with grade of C- or higher; or permission of instructor.

**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 F101 and PSY F345; or permission of the instructor.

**Lecture + Lab + Other:** 2 + 3 + 0

**PSY F469** Health Psychology  
3 Credits

*Offered Fall*

Scientific study of behaviors that relate 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.

**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:** ENGL F111X; ENGL F211X or ENGL F213X; COMM F131X or COMM F141X; nine credit hours of PSY courses (which must include PSY F101X and PSY F275); or permission of instructor.

**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:** ENGL F111X; ENGL F211X or ENGL F213X; PSY F101X; PSY/SOC F250 or STAT F200X; PSY F275; permission of instructor.

**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 analyses.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; one lower-division social science research methods course; or permission of instructor.
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: Permission of instructor; 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 F492P  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 F561  Health Psy I: The Coping Proc  3 Credits
Lecture + Lab + Other: 0 + 0 + 0

PSY F562  Health Psy II: Living Chron Ill  3 Credits
Lecture + Lab + Other: 0 + 0 + 0

PSY F563  Health Psy III: Behav Health  3 Credits
Lecture + Lab + Other: 0 + 0 + 0

PSY F601  Clinical/Community/Cross-Cultural Integration Seminar  1 Credit
Offered As Demand Warrants
Introduces current trends in community, clinical and indigenous psychology. Students are encouraged to explore how these three fields complement each other to bring about positive change in community and clinical settings. Special emphasis on ways to conceptualize mental health and community issues in culturally appropriate ways. 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 or permission of instructor.
Lecture + Lab + Other: 1 + 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 or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.
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 or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

PSY 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 or permission of the instructor.  
Cross-listed with COUN F646.  
Lecture + Lab + Other: 3 + 3 + 0

PSY F647  Professional Ethics  
3 Credits  
Offered Fall  
The ethical standards of the American Psychological Association and American 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 a knowledge of the principles of these three ethical codes and an ability to apply them.  
Prerequisites: Admittance to Master’s program in Psychology or Counseling, or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

PSY 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 project required.  
Prerequisites: Graduate standing.  
Cross-listed with EDSE F648.  
Stacked with PSY F448; EDSE F648.  
Lecture + Lab + Other: 3 + 0 + 0
PSY F650  Cross-Cultural 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 or equivalent; admittance to Counseling program; or School Counseling Certification program; or permission of instructor.
Cross-listed with COUN F650.
Lecture + Lab + Other: 3 + 0 + 0

PSY F652  Practicum Placement -- Clinical I
1-3 Credits
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. May be repeated for a maximum of 9 credits.
Prerequisites: PSY F611; PSY F622; PSY F623; admittance to the Psychology Ph.D. program; or permission of instructor.
Lecture + Lab + Other: 1-3 + 0 + 7-20

PSY F653  Practicum Placement -- Clinical II
1-3 Credits
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.
Prerequisites: PSY F652; admittance to Psychology Ph.D. program; or permission of instructor.
Lecture + Lab + Other: 1-3 + 0 + 0

PSY F657  Quantitative Analysis
3 Credits
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.
Prerequisites: PSY F639; admittance to Psychology Ph.D. program; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PSY F658  Qualitative Analysis
3 Credits
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.
Prerequisites: PSY F639; graduate standing in Psychology; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PSY F659  Multivariate Statistics
3 Credits
Provides a conceptual discussion of and statistical software training in advanced statistical analysis, including multivariate regression, canonical correlation, discriminant analysis, multivariate analysis of variance, principle component analysis, factor analysis, logistic regression, and cluster analysis. 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; PSY F657; admittance to Psychology Ph.D. program; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PSY F661  Cross-Cultural 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; or permission of instructor.
Cross-listed with COUN F660.
Lecture + Lab + Other: 3 + 0 + 0

PSY F666  Family and Network Therapy
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; or permission of instructor.
Cross-listed with COUN F666.
Lecture + Lab + Other: 3 + 0 + 0

PSY F669  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: Graduate standing or permission of instructor.
Stacked with PSY F469.
Lecture + Lab + Other: 3 + 0 + 0
PSY F672   Practicum Placement -- Community I
3 Credits
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.
Prerequisites: Graduate standing in Psychology or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PSY F673   Practicum Placement -- Community II
3 Credits
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.
Prerequisites: PSY F672; graduate standing in Psychology; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PSY 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. The clinical, ethical and cultural issues involved in supervision. Relevant evidence-based interventions and therapeutic 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: Admittance to the Psychology Ph.D. program or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

PSY F675   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; or permission of instructor. 
Lecture + Lab + Other: 3 + 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 into the Psychology Ph.D. program or permission of instructor.
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 or permission of instructor.
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. 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 or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

PSY F684   Clinical Supervision
3 Credits
The clinical, ethical and cultural issues involved in supervision. 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; or permission of instructor.
Lecture + Lab + Other: 3 + 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.
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.
Prerequisites: RECR F110D or instructor permission.
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 F120B 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 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

RECR F130D  Advanced Ballroom Dance
1 Credit
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.
Cross-listed with FLPA F130D.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130E  Beginning Ballroom Dance
1 Credit
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.
Cross-listed with FLPA F130E.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130F  Intermediate Ballroom Dance
1 Credit
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.
Cross-listed with FLPA F130F.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130G  Advanced Ballroom Dance
1 Credit
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.
Cross-listed with FLPA F130G.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130H  Beginning Ballet
1 Credit
Offered As Demand Warrants
Instruction and practice in ballet at beginning levels.
Cross-listed with FLPA F130H.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130J  Intermediate Ballet
1 Credit
Offered As Demand Warrants
Instruction and practice in ballet at intermediate levels.
Cross-listed with FLPA F130J.
Lecture + Lab + Other: 0 + 3 + 0
RECR F130K Advanced Ballet
1 Credit
Offered As Demand Warrants
Instruction and practice in ballet at advanced levels.
Cross-listed with FLPA F130K.
Lecture + Lab + Other: 0 + 3 + 0

RECR 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 FLPA F130N.
Lecture + Lab + Other: 0 + 3 + 0

RECR 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 ability to execute maneuvers presented in class.
Cross-listed with FLPA F130Q.
Lecture + Lab + Other: 0 + 3 + 0

RECR 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 FLPA F130R.
Lecture + Lab + Other: 0 + 3 + 0

RECR 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 FLPA F130S.
Lecture + Lab + Other: 0 + 3 + 0

RECR 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 FLPA F130T.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130U Hot Hula Fitness
1 Credit
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.
Lecture + Lab + Other: 0 + 3 + 0

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.
Cross-listed with FLPA F130V.
Lecture + Lab + Other: 0 + 3 + 0

RECR F130W 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 F130X 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; or permission of instructor.
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 is an 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 F140E  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. Pistol parts, operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140F  Intermediate 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. Pistol parts and their operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.
Lecture + Lab + Other: 0 + 3 + 0

RECR F140G  Advanced Pistol Marksmanship
1 Credit
Offered As Demand Warrants
Advanced knowledge, skills and attitudes necessary for owning and using a pistol safely and to advance through the NRA marksmanship program. Pistol parts and their operation, ammunition, gun safety, and shooting fundamentals. Safety will be the foremost concern.
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 F140K  Advanced Rock Climbing
1 Credit
Offered As Demand Warrants
An extension of beginning rock climbing. Hauling, aid climbing, advanced Jumar techniques, lead climbing, portaledge set up and taping.
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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered As Demand Warrants</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECR F150B</td>
<td>Intermediate Aikido</td>
<td>1</td>
<td>Demand Warrants</td>
<td>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</td>
</tr>
<tr>
<td>RECR F150C</td>
<td>Advanced Aikido</td>
<td>1</td>
<td>Demand Warrants</td>
<td>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</td>
</tr>
<tr>
<td>RECR F150D</td>
<td>Beginning Karate</td>
<td>1</td>
<td>Demand Warrants</td>
<td>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</td>
</tr>
<tr>
<td>RECR F150E</td>
<td>Intermediate Karate</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in intermediate karate. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150F</td>
<td>Advanced Karate</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in advanced karate. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150G</td>
<td>Beginning Kung Fu/Ju jitsu/Tae Kwon Do</td>
<td>1</td>
<td>Demand Warrants</td>
<td>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</td>
</tr>
<tr>
<td>RECR F150H</td>
<td>Intermediate Kung Fu/Ju jitsu/Tae Kwon Do</td>
<td>1</td>
<td>Demand Warrants</td>
<td>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</td>
</tr>
<tr>
<td>RECR F150J</td>
<td>Advanced Kung Fu/Ju jitsu/Tae Kwon Do</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in advanced movements, weapons and martial arts certificate promotions. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150K</td>
<td>Beginning Tai Chi</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in beginning tai chi. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150L</td>
<td>Intermediate Tai Chi</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in intermediate tai chi. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150M</td>
<td>Advanced Tai Chi</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in advanced tai chi. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150N</td>
<td>Beginning Japanese Iaido and Swordsmanship</td>
<td>1</td>
<td>Demand Warrants</td>
<td>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</td>
</tr>
<tr>
<td>RECR F150Q</td>
<td>Intermediate Tennis</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in tennis at the intermediate level, building improved consistency and increasing confidence with strokes. Prerequisites: RECR F140Q or instructor permission. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150R</td>
<td>Varsity Athletics</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Instruction and practice in varsity athletics. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150S</td>
<td>Ultimate Frisbee</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Ultimate Frisbee, including catching and throwing the disc as well as both offensive and defensive strategies. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
<tr>
<td>RECR F150T</td>
<td>Volleyball</td>
<td>1</td>
<td>Demand Warrants</td>
<td>Skills of volleyball, game rules, plays and terminology. Lecture + Lab + Other: 0 + 3 + 0</td>
</tr>
</tbody>
</table>
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 furled 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 or permission of instructor.
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 or equivalent.
Lecture + Lab + Other: 0 + 3 + 0
### Religion (RELG)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered As Demand Warrants</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG F110</td>
<td>Isaac v Ishmael: The Israeli-Palestinian Conflict (s)</td>
<td>1</td>
<td>D</td>
<td>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.</td>
</tr>
<tr>
<td>RELG F111</td>
<td>Rebellious Women of the Bible (h)</td>
<td>1</td>
<td>D</td>
<td><em>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.</em></td>
</tr>
<tr>
<td>RELG F112</td>
<td>Dealing with Demons and Death: Magic in Ancient Cultures (h)</td>
<td>1</td>
<td>D</td>
<td><em>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.</em></td>
</tr>
<tr>
<td>RELG F113</td>
<td>The Biblical Environment: Human Ecology in Ancient Israel (s)</td>
<td>1</td>
<td>D</td>
<td><em>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.</em></td>
</tr>
<tr>
<td>RELG F114</td>
<td>The Bible in the Quran (h)</td>
<td>1</td>
<td>D</td>
<td><em>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.</em></td>
</tr>
<tr>
<td>RELG F115</td>
<td>End of Days -- Apocalypse Across the Ages (h)</td>
<td>1</td>
<td>D</td>
<td><em>A study into the origins and interpretive history of Abrahamic religious traditions dealing with the end-time. What were the ancient sociocultural circumstances out of which Jewish, Christian, and Muslim apocalypticism developed? In what manners do nonscriptural end-time narratives and images compare/contrast with those found in the Bible and the Quran? How and why have Biblical and Quranic apocalyptic traditions been (mis)appropriated during later eras, including our own?</em></td>
</tr>
<tr>
<td>RELG F205</td>
<td>Introduction to the Bible</td>
<td>3</td>
<td>D</td>
<td><em>A study of the Bible as literature of ancient Israel and the early Christian church.</em></td>
</tr>
<tr>
<td>RELG F221X</td>
<td>Religions of the World</td>
<td>3</td>
<td>D</td>
<td><em>A survey of the development of major religions of the Eastern and Western world including contemporary world religions.</em></td>
</tr>
<tr>
<td>RELG F231</td>
<td>Prophecy, Shamanism and Scripture</td>
<td>3</td>
<td>D</td>
<td><em>An introductory exploration into the phenomena of prophecy and shamanism as they are conceived and manifested within the textual and cultural traditions of Judaism and Christianity. Comparative evidence is considered from ancient Near Eastern and Mediterranean sources, and modern insights from cultural anthropology and cognitive psychology are brought to bear upon the Biblical materials, in efforts to situate their prophetic and/or shamanistic features within social scientific models of culture and mind.</em></td>
</tr>
</tbody>
</table>

### Rural Development (RD)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tr>
<td>RD F100</td>
<td>The University Experience</td>
<td>3</td>
<td>a</td>
<td><em>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.</em></td>
</tr>
<tr>
<td>RD F110</td>
<td>Alaska Native Claims Settlement Act: Land Claims in the 21st Century (a)</td>
<td>1</td>
<td>d</td>
<td><em>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.</em></td>
</tr>
</tbody>
</table>
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 F245 Fisheries and Marine Wildlife Development in Rural Alaska (s, a) 3 Credits
Offered Fall Uneven 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: ENGL 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: ENGL F111X or permission of instructor.
Lecture + Lab + Other: 1-3 + 0 + 0

RD F250P Grant Writing for Community Development 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.
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 (a) 1-3 Credits
Offered As Demand Warrants
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.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; junior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

RD F315 Tribal People and Development (s, a) 3 Credits
Offered Spring Odd-numbered Years
Comparative examination of socioeconomic development processes on tribal peoples in third and fourth world societies. Attention to implications of these processes for Alaska Native people.
Prerequisites: Junior standing or permission of instructor.
Cross-listed with ANS F315.
Lecture + Lab + Other: 3 + 0 + 0

RD F325 Community Development Strategies (s, a) 3 Credits
Offered Fall
Principles and strategies of asset-based development in rural communities throughout the world. Explores the history of community development ideas and case studies of specific strategies in Alaska and beyond. Topics include community healing, economic renewal and collaborative decision-making approaches.
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: COMM F131X or COMM F141X.
Lecture + Lab + Other: 3 + 0 + 0
RD F351  Strategic Planning for Rural Communities  (a)  
3 Credits  
Offered Spring  
Examination of the major components of planning and grant writing processes as they relate to community land use, business and social service projects.  
Prerequisites: Junior standing or permission of instructor.  
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.  
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 or permission of instructor.  
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 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.  
Prerequisites: RD F350 and RD F351 or permission of instructor.  
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 or permission of instructor.  
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. Stacked with RD F670  
Prerequisites: Junior standing or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

RD F475  Rural Development Senior Project  
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.  
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; senior standing; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

RD F492  Rural Development Seminar  
1-3 Credits  
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. Enrollment 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  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

RD F601  Political Economy of the Circumpolar North  
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 socioeconomically and cultural change in the north.  
Prerequisites: Graduate standing or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

RD F608  Indigenous Knowledge Systems  
3 Credits  
Offered Fall  
A comparative survey and analysis of the epistemological properties, worldviews and modes of transmission associated with various indigenous knowledge systems. Emphasis on knowledge systems practiced in Alaska.  
Prerequisites: Graduate standing or approval of instructor.  
Cross-listed with CCS F608; ED F608; ANL F608.  
Lecture + Lab + Other: 3 + 0 + 0

RD F612  Traditional Ecological Knowledge  
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 or approval of the instructor.  
Cross-listed with CCS F612.  
Lecture + Lab + Other: 3 + 0 + 0

RD F625  Community Development Strategies: Principles and Practices  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

RD F650  Community-Based Research Methods  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

RD F651  Management Strategies for Rural Development  
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 or permission of instructor.  
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 or permission of instructor.  
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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F670  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.  
Prerequisite: Graduate standing or permission of instructor.  
Stacked with RD F470.  
Lecture + Lab + Other: 3 + 0 + 0  

RD F690  Seminar in Cross-Cultural Studies  (a)  
3 Credits  
Offered As Demand Warrants  
Investigation of current issues in cross-cultural contexts. Opportunity for students to synthesize their 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  (a)  
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
Offered As Demand Warrants
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
Offered As Demand Warrants
Overview of mental illness and recovery issues. Emphasis on issues for practitioners in small, rural communities in Alaska.

Prerequisites: RHS F150 or instructor permission.

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

RHS 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.
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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
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.
Prerequisites: RUSS F101X or equivalent.
Attributes: UAF GER Humanities Req
Lecture + Lab + Other: 5 + 0 + 0

RUSS F102X Elementary Russian II (h) 5 Credits
Offered Spring
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: RUSS F105 or permission of instructor.
Recommended: RNS F120.
Lecture + Lab + Other: 0 + 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 F102 or above; or permission of instructor.
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 or above; or permission of instructor.
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 or equivalent.
Lecture + Lab + Other: 4 + 0 + 0
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Lecture + Lab + Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS F203</td>
<td>Conversational Russian II (h)</td>
<td>3</td>
<td>Spring Odd-numbered Years</td>
<td>Oral skills improvement. Vocabulary is presented to improve speaking on specific topics. Does not satisfy core curriculum or foreign language major requirements.</td>
<td>RUSS F102X or above; or permission of instructor.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>RUSS F292</td>
<td>Russian Seminar</td>
<td>1-8</td>
<td></td>
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<td></td>
<td>1-8 + 0 + 0</td>
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<tr>
<td>RUSS F301</td>
<td>Advanced Russian (O, W, h)</td>
<td>3</td>
<td>Fall</td>
<td>Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in Russian.</td>
<td>COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; RUSS F202; or instructor permission.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>RUSS F302</td>
<td>Advanced Russian (O, W, h)</td>
<td>3</td>
<td>Fall</td>
<td>Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises and special grammatical problems. Conducted in Russian.</td>
<td>COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; RUSS F301 or equivalent; or permission of instructor.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>RUSS F392</td>
<td>Russian Seminar</td>
<td>1-8</td>
<td></td>
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<td></td>
<td>1-8 + 0 + 0</td>
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<tr>
<td>RUSS F431</td>
<td>Studies in Russian Culture (h)</td>
<td>3</td>
<td>Fall Odd-numbered Years</td>
<td>Study of the cultures of the Russian-speaking world. May be repeated for credit if topic varies.</td>
<td>RUSS F301 or equivalent; junior standing or permission of instructor.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>RUSS F432</td>
<td>Studies of Russian Literature (h)</td>
<td>3</td>
<td>Fall Even-numbered Years</td>
<td>Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. May be repeated for credit when topics vary.</td>
<td>RUSS F302 or equivalent, and at least junior standing, or permission of instructor.</td>
<td>3 + 0 + 0</td>
</tr>
<tr>
<td>RUSS F476</td>
<td>Russian Culture and Society in the 21st Century (h)</td>
<td>3</td>
<td>Spring Even-numbered Years</td>
<td>Study of contemporary Russian culture and society through selected literary texts and media representations; examination of the idea of the &quot;Russian North&quot; 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 2 NORS courses.</td>
<td>ENGL F111X; ENGL F211X or ENGL F213X; COMM F131X or COMM F141X; junior standing or permission of the instructor.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>RUSS F482</td>
<td>Selected Topics in Russian Literature (h)</td>
<td>3</td>
<td>Fall Even-numbered Years</td>
<td>Intensive course in literature focusing on nineteenth-century writers. Conducted in English. Note: Course may be repeated for credit if topic varies.</td>
<td>Junior standing, or permission of instructor.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>RUSS F484</td>
<td>Russian and Soviet Cinema (h)</td>
<td>3</td>
<td>Fall Odd-numbered Years</td>
<td>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.</td>
<td>Junior standing, or permission of instructor.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>RUSS F488</td>
<td>Individual Study: Senior Project (h)</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>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.</td>
<td>At least 10 credits in upper division Russian or permission of instructor.</td>
<td>3 + 0 + 0</td>
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<tr>
<td>SCIA F105</td>
<td>Field Biology</td>
<td>2</td>
<td>Summer</td>
<td>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.</td>
<td></td>
<td>20 + 20 + 0</td>
</tr>
</tbody>
</table>
### Science Teaching and Outreach (STO)

**STO F601 Communicating Science**  
1 Credit  
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 or instructor permission.  
**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

**STO F603 Instructional Design**  
1 Credit  
Offered Spring  
This graduate seminar course will address important components of course planning and instructional design that reflect best practices in science teaching. This course focuses on the overall design of courses, the integration of the various components of a course, the development and implementation of summative assessments and syllabus construction. The course format will consist of reading and discussion, seminars and workshops.  
**Prerequisites:** Graduate standing.  
**Lecture + Lab + Other:** 2 + 0 + 0

**STO F604 Science Teaching and Outreach Internship**  
4 Credits  
Under the supervision of a faculty member, students gain professional experience in science teaching or outreach by choosing one of the following strands: 1) higher education, 2) formal K-12 education, or 3) informal education. An internship plan is developed prior to enrollment and agreed upon by the instructor of record, faculty mentor or K-12 teacher mentor, and student.  
**Prerequisites:** STO F666 for higher education strand or STO F601 for formal K-12 education or informal education strand or permission of instructor.  
**Lecture + Lab + Other:** 0 + 0 + 12

**STO F605 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. Cross-listed with BIOL F666, CHEM F666, GEOS F666  
**Prerequisites:** Graduate standing with BIOL F666, CHEM F666, GEOS F666  
**Lecture + Lab + Other:** 2 + 0 + 0

**STO F604 Science Teaching and Outreach Internship**  
4 Credits  
Under the supervision of a faculty member, students gain professional experience in science teaching or outreach by choosing one of the following strands: 1) higher education, 2) formal K-12 education, or 3) informal education. An internship plan is developed prior to enrollment and agreed upon by the instructor of record, faculty mentor or K-12 teacher mentor, and student.  
**Prerequisites:** STO F666 for higher education strand or STO F601 for formal K-12 education or informal education strand or permission of instructor.  
**Lecture + Lab + Other:** 0 + 0 + 12

**STO F605 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. Cross-listed with BIOL F666, CHEM F666, GEOS F666  
**Prerequisites:** Graduate standing with BIOL F666, CHEM F666, GEOS F666  
**Lecture + Lab + Other:** 2 + 0 + 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 how to use active and inquiry-based teaching strategies.  
**Lecture + Lab + Other:** 1 + 0 + 0

**SCIA F251 Hort Sci/Subarct Environ**  
3 Credits  
**Lecture + Lab + Other:** 3 + 0 + 0
STO F692  Current Topics in Scientific Teaching  
1 Credit  
Offered Alternate Fall  
This graduate seminar course explores current trends in science education at the pre-college and college levels. Topics may include diversity, technology, active learning, and others. The course will rely on readings from primary literature and discussion.  
Prerequisites: Graduate standing.  
Recommended: STO F666 or STO F601.  
Lecture + Lab + Other: 1 + 0 + 0  

STO F692P  Current Topics in Scientific Teaching  
1 Credit  
Offered Alternate Fall  
This graduate seminar course explores current trends in science education at the pre-college and college levels. Topics may include diversity, technology, active learning, and others. The course will rely on readings from primary literature and discussion.  
Prerequisites: Graduate standing.  
Recommended: STO F666 or STO F601.  
Lecture + Lab + Other: 1 + 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.  
Attributes: UAF GER Social Sciences Req  
Lecture + Lab + Other: 3 + 0 + 0  

SWK F197  Individual Study  
1-6 Credits  
Lecture + Lab + Other: 0 + 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 social work or other helping professions.  
Prerequisites: SWK F103X; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

SWK F305  Social Welfare History  
(Q, 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: COMM F131X or COMM F141X; SWK F103X or SOC F100X or ANTH 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; or permission of instructor.  
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: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; 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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0  

SWK F341  Human Behavior in the Social Environment I  
(s)  
3 Credits  
Offered Fall  
Theoretical frameworks for organizing knowledge about personality development, social behavior and the organization of groups and communities. An emphasis is placed on the bio-psycho-social perspective of human development from birth through adolescence.  
Prerequisites: PSY F101X; SOC F100X or ANTH F100X; SWK F103X.  
Lecture + Lab + Other: 3 + 0 + 0  

SWK F342  Human Behavior in the Social Environment II  
3 Credits  
Offered Spring  
Theoretical frameworks for organizing knowledge, personality development, social behavior and the organization of groups and communities. An emphasis is placed on the bio-psycho-social of human development young adulthood through later life.  
Prerequisites: PSY F101X; SOC F100X or ANTH F100X; SWK F103X; social work major.  
Lecture + Lab + Other: 3 + 0 + 0
SWK F350  Women's Issues in Social Welfare and Social Work Practices  (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: ENGL F111X; ENGL F211X or ENGL F213X; SWK F103X or SOC F100X; or permission of instructor.
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 or permission of instructor.
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: ENGL F111X; ENGL F211X or ENGL F213X; SWK F103X; or permission of instructor.
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; or permission of instructor.
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; or permission of instructor.
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, families and groups. Application of intervention strategies and techniques made to case materials, primarily in family and child welfare services. Contracting, case management and social brokerage.
Prerequisites: Concurrent enrollment in SWK F461; Social Work major; senior standing.
Lecture + Lab + Other: 3 + 0 + 0

SWK F461  Practicum in Social Work I
3 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: 1 + 7,15 + 0

SWK F463  Social Work Practice II
3 Credits
Offered Spring
Further development of student's knowledge of direct practice with clients and development of beginning skills in community work including social planning. Emphasis on aspects of rural practice such as use of community associations and the informal helping network. Taken concurrently with SWK F464.
Prerequisites: Social work major, senior standing, and concurrent enrollment in 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: 1 + 7,15 + 0

SWK F466  Practicum in Social Work II
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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SWK F492  Seminar  1-3 Credits
Lecture + Lab + Other: 1-3 + 0 + 0

SWK F492P  Seminar  1-3 Credits
Lecture + Lab + Other: 1-3 + 0 + 0

Sociology (SOC)

SOC 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 ENGL F111X or higher; or permission of instructor.
Attributes: UAF Core Indv, Soci Culture, UAF GER Social Sciences Req
Lecture + Lab + Other: 3 + 0 + 0

SOC F201X  Social Problems (s)  3 Credits
Offered Fall
A study of major contemporary social problems, analysis of factors causing these problems. Emphasis on cross-cultural differences in Alaska and other parts of the world.
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 F100X.
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 F100X or permission of instructor.
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 F100X or SOC F201X; or permission of instructor.
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.
Prerequisites: SOC F100X; SOC F201X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SOC F301  Rural Sociology (s)  3 Credits
Analysis 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.
Lecture + Lab + Other: 3 + 0 + 0

SOC F303  Early Sociological Thought (s)  3 Credits
Offered Spring
The major sociological theories of the classical period (19th and early 20th centuries) that have influenced contemporary sociology.
Prerequisites: SOC F100X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F308  Race and Ethnic Relations (s)  3 Credits
Offered Fall
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.
Prerequisites: SOC F100X; SOC F201X; SOC F263.
Lecture + Lab + Other: 3 + 0 + 0

SOC F309  Urban Sociology (s)  3 Credits
Offered As Demand Warrants
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.
Lecture + Lab + Other: 3 + 0 + 0

SOC F310  Sociology of Aging (s)  3 Credits
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.
Prerequisites: SOC F100X; junior standing or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0
SOC 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.
Prerequisites: Recommended: One social sciences course.
Cross-listed with WGS F320.
Lecture + Lab + Other: 3 + 0 + 0

SOC 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 F100X; SOC F373 or PSY F245.
Cross-listed with PSY F330.
Lecture + Lab + Other: 3 + 0 + 0

SOC 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 F100X or SOC F201X or PSY F101X or WGS F201X; or permission of instructor.
Recommended: SOC F100X; SOC F201X; or PSY F245.
Cross-listed with PSY F333; WGS F332.
Lecture + Lab + Other: 3 + 0 + 0

SOC F335 Deviance and Social Control (s) 3 Credits
Offered Fall Odd-numbered Years
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).
Prerequisites: SOC F100X; SOC F201X; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SOC 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 F100X or permission of instructor.
Cross-listed with ED F345.
Lecture + Lab + Other: 3 + 0 + 0

SOC F350 Sociology of Childhood (W, s) 3 Credits
Offered Fall Even-numbered Years
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.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SOC F373 Research Methods in the Social Sciences (W, s) 3 Credits
Offered Fall
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.
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; SOC F100X; SOC F201X; SOC F263.
Lecture + Lab + Other: 3 + 0 + 0

SOC F405 Social Movements and Social Change (O, s) 3 Credits
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: COMM F131X or COMM F141X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F407 Work and Occupations (O, s) 3 Credits
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: COMM F131X or COMM F141X.
Lecture + Lab + Other: 3 + 0 + 0

SOC F435 Sociology of Law (s) 3 Credits
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 F100X; junior standing; or permission of instructor.
Recommended: SOC F303.
Lecture + Lab + Other: 3 + 0 + 0

SOC F440 Environmental Sociology (O, s) 3 Credits
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: COMM F131X or COMM F141X; Recommended: one social science course.
Lecture + Lab + Other: 3 + 0 + 0
SOC F460  Global Issues in Sociological Perspective (s)  
3 Credits  
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. Recommended  
**Prerequisites:** One social science course.  
**Lecture + Lab + Other:** 3 + 0 + 0  

SOC 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:** ENGL F111X, ENGL F211X or ENGL F213X; one lower-division social science research methods course; or permission of instructor.  
**Cross-listed with** PSY F480.  
**Lecture + Lab + Other:** 3 + 0 + 0  

SOC F490  Capstone Seminar in Sociology (s)  
3 Credits  
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; or permission of instructor.  
**Attributes:** UAF GER Humanities Req  
**Lecture + Lab + Other:** 3 + 0 + 0  

SOC F492  Seminar  
1-3 Credits  
**Lecture + Lab + Other:** 1-3 + 0 + 0  

SOC F492P  Seminar  
1-3 Credits  
**Lecture + Lab + Other:** 1-3 + 0 + 0  

SOC F698  Research  
1-6 Credits  
**Lecture + Lab + Other:** 0 + 0 + 0  

SOC F699  Thesis  
1-6 Credits  
**Lecture + Lab + Other:** 0 + 0 + 0  

**Spanish (SPAN)**  

SPAN F100A  Elementary Spanish 1A (h)  
3 Credits  
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  

SPAN F100B  Elementary Spanish 1B (h)  
3 Credits  
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; or permission of instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0  

SPAN F101X  Elementary Spanish I (h)  
5 Credits  
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  

SPAN F102X  Elementary Spanish II (h)  
5 Credits  
Offered Spring  
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.  
**Prerequisites:** SPAN F101X; or SPAN F100A and SPAN F100B; or the equivalent.  
**Attributes:** UAF GER Humanities Req  
**Lecture + Lab + Other:** 5 + 0 + 0  

SPAN F103  Conversational Spanish I (h)  
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 or equivalent; or permission of instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0  

SPAN F201  Intermediate Spanish I (h)  
3 Credits  
Offered Fall  
Continuation of SPAN F102X. Increasing emphasis on reading, writing and oral ability. Conducted in Spanish.  
**Prerequisites:** SPAN F102X or equivalent; or permission of instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0  

SPAN F202  Intermediate Spanish II (h)  
3 Credits  
Offered Spring  
Continuation of SPAN F201. Increasing emphasis on reading, writing and oral ability. Conducted in Spanish.  
**Prerequisites:** SPAN F201 or equivalent; or permission of instructor.  
**Lecture + Lab + Other:** 3 + 0 + 0
SPAN F203 SI SI! (Summer Intensive Spanish Immersion) (h)
3 Credits
Offered Summer As Demand Warrants
Prerequisites: SPAN F201; F202 or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F222 Cultures and Civilizations of Spain (h)
3 Credits
Offered Spring Even-numbered Years
Designed to provide students of Spanish language and others interested in Hispanic culture with background in the geography, history, religions, cultures, and politics of Spain. Explores the changes and challenges facing contemporary Spanish society. Conducted in English. Recommended SPAN F102X.
Prerequisites: SPAN F102X or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F301 Advanced Spanish Conversation and Comprehension (O, h)
3 Credits
Offered Fall
Focus on increasing speaking and listening comprehension. Discussions, presentations and exercises to enhance verbal competence. Conducted in Spanish.
Prerequisites: COMM F131X or COMM F141X; SPAN F202 or equivalent; or instructor permission.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F302 Advanced Spanish Reading and Literary Comprehension (W, h)
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: ENGL F111X; ENGL F211X or ENGL F213X; SPAN F202 or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F311 Advanced Spanish Composition (h)
3 Credits
Practice of formal and informal writing styles in Spanish. Focus on vocabulary and stylistic issues.
Prerequisites: SPAN F202.
Recommended: ENGL F111.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F317 Advanced Spanish Grammar (h)
3 Credits
Grammatical concepts in Spanish. Focus on more difficult grammatical structures.
Prerequisites: SPAN F202 or equivalent or permission of instructor.
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 or equivalent; or permission of instructor.
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 or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F431 Senior Seminar (O, h)
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: COMM F131X or COMM F141X; SPAN F302 or equivalent; senior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F432 Studies of Hispanic Literature (W, h)
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: ENGL F111X; ENGL F211X or ENGL F213X; SPAN F302 or equivalent; junior standing; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

SPAN F482 Selected Topics in Spanish (h)
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 or equivalent; junior standing; or permission of instructor.
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 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

Statistics (STAT)

STAT F200X Elementary Probability and Statistics
3 Credits
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. Parametric methods.
Prerequisites: MATH F151X; or MATH F122X; or MATH F156X; or placement; or permission of instructor.
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 including maximum likelihood, one and two sample hypothesis tests including likelihood ratio 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 years 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
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. Special fees apply. Also offered in Juneau as demand warrants.
Prerequisites: STAT F200X [STAT S273-J] or STAT F300 or permission of instructor.
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 or permission of instructor.
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 completion or concurrent enrollment in MATH F408; or permission of instructor. 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 or permission of instructor.
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 or permission of instructor.
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 or equivalent; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

STAT F611  Time Series
3 Credits
Offered Spring Odd-numbered Years
Prerequisites: STAT F401 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

STAT F621  Distribution-Free Statistics
3 Credits
Offered Fall Odd-numbered Years
Methods for distribution-free (nonparametric) statistical estimation and testing. These methods apply to many practical situations including small samples and non-Gaussian error structures. Univariate, bivariate, and multivariate tests will be presented and illustrated using a variety of applications and data sets.
Prerequisites: STAT F200X [STAT S273-J].
Lecture + Lab + Other: 3 + 0 + 0

STAT F631  Categorical Data Analysis
3 Credits
Offered Fall Odd-numbered Years
Prerequisites: STAT F401; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

STAT F641  Bayesian Statistics
3 Credits
Offered Fall Even-numbered Years
Bayes’ Rule, univariate Bayesian models, conjugate models and noninformative priors. Multiparameter models. Hierarchical models, general linear model and mixed models. Study of posterior simulation techniques including Markov Chain Monte Carlo and the Gibbs Sampler. Will involve analysis of data sets using WinBUGs and R.
Prerequisites: MATH F252X; MATH F371-F408 or STAT F651; or permission of instructor.
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; or permission of instructor.  
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; or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

STAT F652  Statistical Theory II  
4 Credits  
Offered Spring Odd-numbered Years  
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, 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, logistic regression, Poisson regression, autoregressive models and the General Linear Model. 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. Student must take 651 or all the other courses listed.  
Prerequisites: STAT F651 or STAT F401; MATH F251X; MATH F252X; 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 completion or concurrent enrollment in MATH F408; or permission of instructor.  
Stacked with STAT F454.  
Lecture + Lab + Other: 1 + 0 + 0

STAT F661  Sampling Theory  
3 Credits  
Offered Juneau As Demand Warrants  
Prerequisites: STAT F200X [STAT S273-J]; STAT F401; or permission of instructor.  
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 F099  Practicum  
1-3 Credits  
Individual work and development of skills learned in prior courses.  
Lecture + Lab + Other: 0 + 0 + 0

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
TTC 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

TTC 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

TTC 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

TTC 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

TTC 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

TTC 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

TTC 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

TTC 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

TTC 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

TTC 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

TTC 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

TTC F136 Basic Shielded-Arc Weld
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

TTC 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

TTC 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

TTC 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 TTC 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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
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 and permission of instructor.
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 or permission of instructor.
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 and permission of instructor.
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 Warrants
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 Warrants
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 fundemualts 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 Warrants
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 Warrants
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 Warrants
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 Warrants
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 Warrants
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 Warrants
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

TM F118  Tribal Community and Restorative Justice  (a)  
1 Credit
Offered As Demand Warrants
Focuses on concepts and strategies in community justice, restorative justice, tribal peacemaking and other prominent judicial theories impacting modern Alaskan tribal jurisprudence.
Recommended: TM F110.
Lecture + Lab + Other: 1 + 0 + 0

TM F120  Introduction to Tribal Natural Resource Management  (a)  
3 Credits
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.
Lecture + Lab + Other: 3 + 0 + 0
TM F130 Introduction to Utility Management  (a)  
2 Credits  
Principles and practices involved in managing small water and wastewater facilities in rural Alaskan communities, including basic terms, key concepts and an overview of five management functions: organizational, financial, personnel, planning and operational management.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F131 Organizational Management for Utilities  (a)  
2 Credits  
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.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F132 Operations Management for Utilities  (a)  
2 Credits  
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.  
Recommended: TM F130.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F134 Financial Management for Utilities  (a)  
2 Credits  
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.  
Recommended: TM F130.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F136 Personnel Management for Utilities  (a)  
2 Credits  
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.  
Recommended: TM F130.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F138 Planning for Utilities  (a)  
2 Credits  
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.  
Recommended: TM F130.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F139 Elected Officials Management for Rural Utilities  
2 Credits  
Offered As Demand Warrants  
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.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F140 Introduction to Geospatial Data  
1 Credit  
Offered As Demand Warrants  
An introductory survey of tools for the gathering and mapping of both qualitative and quantitative geospatial data for the natural and social sciences. Students will get direct experience with basic tools and techniques for gathering geospatial data, and will incorporate their data into an existing geospatial database.  
Prerequisites: Basic computer literacy equivalent to CIOS F100 or permission of instructor.  
Lecture + Lab + Other: 1 + 0 + 0  

TM F141 Practical GIS for Rural Alaska  
2 Credits  
A practical and place-based introduction to the development of maps using Geographic Information System (GIS) software. Covers the basic tools and skills necessary for creating community maps using existing geospatial data as well as data gathered using Global Positioning System (GPS) technology. Class exercises emphasize map development for applications pertinent to rural Alaska.  
Prerequisites: TM F140 or permission of the instructor.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F142 Practical GIS Project Design  
2 Credits  
How to design and implement basic Geographic Information System (GIS) projects. Class exercises emphasize GIS project planning, data collection, and practical map development to meet common needs for communities in rural Alaska.  
Prerequisites: TM F141 or permission of the instructor.  
Lecture + Lab + Other: 2 + 0 + 0  

TM F170 Fundamentals of Rural Transportation  (a)  
4 Credits  
Offered As Demand Warrants  
Provides an introduction to managing the unique multi-modal transportation system in rural Alaska. Course is designed for entry-level transportation managers or those new to rural transportation issues.  
Lecture + Lab + Other: 4 + 0 + 0  

TM F171 Introduction to the Indian Reservation Roads Program  (a)  
1 Credit  
Offered As Demand Warrants  
Introduction to the federal Indian Reservation Roads (IRR) program. The course will cover the history of the program, including recent program changes and their applicability to and effect on Alaska Native Tribes and communities in rural Alaska. The fundamentals of implementing a tribal IRR program will be presented.  
Lecture + Lab + Other: 1 + 0 + 0
Lecture + Lab + Other: 1 Credit
Provides students with hands-on experience in conducting a field inventory of transportation facilities. Emphasis on meeting the inventory requirements for the Indian Reservation Roads program

**Recommended:** TM F171.
**Lecture + Lab + Other:** 1 + 0 + 0

**TM F172** Conducting a Rural Transportation Inventory (a)
1 Credit
Offered As Demand Warrants
Provides students with hands-on experience in conducting a field inventory of transportation facilities. Emphasis on meeting the inventory requirements for the Indian Reservation Roads program

**Recommended:** TM F171.
**Lecture + Lab + Other:** 1 + 0 + 0

**TM F173** Traffic Monitoring for Rural Transportation (a)
1 Credit
Offered As Demand Warrants
Provides students with the basic tools to conduct a traffic monitoring program in rural Alaska. Topics covered include: the purpose of traffic monitoring; terms, definitions and acronyms commonly used in traffic monitoring; deciding where and when to monitor; required and optional data; data collection tools and techniques; adjustment factors and adjusted average daily traffic (ADT) calculations and data reporting. Emphasis is placed on meeting the ADT requirements of the Indian Reservation Roads program.

**Recommended:** TM F171; TM F172.
**Lecture + Lab + Other:** 0.5 + 1 + 0

**TM F174** Basics of a Good Gravel Road (a)
1 Credit
Offered As Demand Warrants
Provides students with a basic understanding of what makes a good gravel road. This course is designed for entry-level transportation managers as well as transportation maintenance and operations staff.

**Recommended:** TM F171; TM F172; TM F173.
**Lecture + Lab + Other:** 0.5 + 1 + 0

**TM F182** Introduction to NEPA for Rural Transportation
1 Credit
Offered As Demand Warrants
An introduction to the federal National Environmental Policy Act (NEPA) and its applicability to rural transportation projects in Alaska. The course will cover the history of NEPA, including recent policy changes affecting Alaska Native Tribes. The course will present an overview of the NEPA process, the categories of NEPA documents, the NEPA requirements for different types of transportation projects, and how to effectively participate in agency-led NEPA processes.

**Lecture + Lab + Other:** 1 + 0 + 0

**TM F199** Tribal Management Practicum I (a)
3 Credits
Professional and personal development while working in a rural service organization. Emphasis on developing the understanding and skills necessary for delivery of rural services. Course is guided by an academic advisor. Student must be willing and able to work independently outside the classroom and in the community.

**Prerequisites:** Must be familiar with computer and related word processing and spreadsheet programs.

**Lecture + Lab + Other:** 3 + 0 + 0

**TM F201** Tribal Government in Alaska II (a)
3 Credits
Offered Spring
A study of tribal government and politics in Alaska. Explores the historical relationships among tribal, state and federal government in Alaska. Provides a focus on tribal sovereignty and self-determination for building and enhancing tribal governments.

**Lecture + Lab + Other:** 3 + 0 + 0

**TM F205** Managing Tribal Governments II (a)
3 Credits
Advanced 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:** TM F105.
**Lecture + Lab + Other:** 3 + 0 + 0

**TM F225** Cross Connections: Adapting and Integrating Principles of Management and Conservation (a)
3 Credits
Skills, abilities and knowledge needed to adapt traditional Western science and management principles to indigenous resource concepts and values are crucial when dealing with contemporary natural resource, land and environmental management issues in rural Alaska. To prepare students and provide tools and methods for considering cross-cultural concepts and values in resource management and conservation decisions.

**Lecture + Lab + Other:** 3 + 0 + 0

**TM F250** Current Topics in Tribal Government (a)
1,2 Credit
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.

**Lecture + Lab + Other:** 1.2 + 0 + 0

**TM F271** Rural Transportation Planning
1 Credit
Offered As Demand Warrants
Provides an introduction to the planning requirements of rural transportation programs, with emphasis on the Indian Reservation Roads (IRR) program. This course gives an overview of a transportation planning cycle, from grounding and visioning through plan development, implementation, evaluation and re-visioning. The planning elements that can be included under the IRR program regulations will be reviewed and discussed.

**Prerequisites:** TM F171; or permission of instructor.

**Lecture + Lab + Other:** 1 + 0 + 0

**TM F272** Finance Applications for Rural Transportation (a)
1 Credit
Offered As Demand Warrants
Prepares students and provides financial tools and methods for the management and oversight of rural government transportation programs. Familiarity with rural transportation issues and basic finance applications recommended.

**Prerequisites:** TM F171.
**Recommended:** TM F105.

**Lecture + Lab + Other:** 1 + 0 + 0

**TM F273** Transportation Improvement Programs and Control Schedules (a)
1 Credit
Offered As Demand Warrants
Provides students with the basic skills to develop a Transportation Improvement Program (Tribal TIP) and a supporting Control Schedule for rural transportation programs. The course will cover the process and minimum requirements for developing a TIP, how to develop the supporting control schedule and how to tie the control schedule to internal budget processes. Emphasis will be placed on meeting the requirements for the Indian Reservation Roads program.

**Prerequisites:** TM F272.

**Lecture + Lab + Other:** 1 + 0 + 0
TM F274  Road Inventory Field Data System (a)  
1 Credit  
Offered As Demand Warrants  
Introduction to the BIA Road Inventory Field Data System (RIFDS). Students will learn to navigate RIFDS and to enter, modify, and delete inventory data. The relationship between RIFDS, other databases, and fund allocation will be examined. Students may apply for RIFDS access upon completion of course.  
Prerequisites: Basic computer literacy equivalent to CIOS F100 and familiarity with the BIA Indian Reservation Roads program or permission of the instructor.  
Lecture + Lab + Other: 1 + 0 + 0

TM F276  Project Management for Rural Transportation (a)  
4 Credits  
Offered As Demand Warrants  
Introductory course on project management, focusing on transportation projects in rural Alaska. Designed for individuals familiar with rural transportation programs but new to project management.  
Prerequisites: TM F170 or TM F171; TM F172; TM F173; TM F174 or permission of instructor.  
Lecture + Lab + Other: 4 + 0 + 0

TM F299  Tribal Management Practicum II (a)  
3 Credits  
Professional and personal development while working in a rural service organization. Emphasis on developing the understanding and skills necessary for delivery of rural services. Course is guided by an academic advisor. Student must be willing and able to work independently outside the classroom and in the community.  
Prerequisites: Must be familiar with computer and related word processing and spreadsheet programs.  
Lecture + Lab + Other: 3 + 0 + 0

Undergraduate Research and Scholarly Activity (URSA)  

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 F193  Special Topics  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0

URSA F193P  Special Topics  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0

URSA F295  Special Topics  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 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 or permission of instructor.  
Lecture + Lab + Other: 1 + 4-10 + 0

URSA F393  Special Topics  
2-6 Credits  
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 or permission of the instructor.  
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

URSA F493  Special Topics  
2-6 Credits  
Lecture + Lab + Other: 1 + 4-10 + 0

URSA F493P  Special Topics  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0

Veterinary Medicine (DVM)  

DVM F495  Special Topics  
1-6 Credits  
Lecture + Lab + Other: 1-6 + 0 + 0
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.
Stacked with BIOL F456.
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.
Stacked with MSL F618.
Lecture + Lab + Other: 5 + 6 + 0

DVM F618   Veterinary Physiology and Histology
7 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 include 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 F623   Veterinary Nutrition and Metabolism
2 Credits
Offered Fall
This course will examine 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.
Prerequisites: Successful completion of first semester veterinary courses.
Cross-listed with BIOL F632; MSL F637.
Lecture + Lab + Other: 3 + 0 + 0
DVM F638  Veterinary Parasitology
2 Credits
Offered Spring
Biology of helmint, 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.
Stacked 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 F693  Special Topics
1-6 Credits
Lecture + Lab + Other: 1-6 + 0 + 0

DVM F695  Special Topics
1-6 Credits
Lecture + Lab + Other: 1-6 + 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, surgicical 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 epidemicologic 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; or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 5 + 2 + 0

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; or permission of instructor.
Lecture + Lab + Other: 1 + 3 + 0

DVM F741 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 F744 Theriogenology
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 or permission of instructor.
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 or permission of instructor.
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; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

Welding and Materials Technology (WMT)

WMT F101 Introduction to Welding
4 Credits
Offered As Demand Warrants
Introduction and orientation to the processes and procedures involved in the welding field including safe operational procedures for shielded metal arc welding (SMAW) (Stick), mixed inert gas (MIG), tungsten inert gas (TIG) and oxy-acetylene welding; in addition to the appropriate personal protective equipment (PPE) and terminology related to the welding industry.
Lecture + Lab + Other: 2 + 4 + 0

WMT F102 Intermediate Welding
3 Credits
Continuation of WMT F101.
Prerequisites: WMT F101.
Lecture + Lab + Other: 2 + 2 + 0

WMT F103 Welding I
3 Credits
Entry-level course in basic oxyacetylene, arc welding and flame cutting. Attendance at first two classes is mandatory.
Lecture + Lab + Other: 1 + 4 + 0

WMT F105 Welding II
3 Credits
Arc welding techniques and basic MIG and TIG welding. Attendance at first two classes is mandatory.
Prerequisites: WMT F103 or permission of instructor.
Lecture + Lab + Other: 1 + 4 + 0

WMT F106 Heat Treating/Metal Finishing/Knife Making I
3 Credits
Heat treating, metal finishing. Build two knives, heat treat and finish. Special Conditions: Must have excellent hand-eye coordination. Attendance at first class is mandatory.
Recommended: WMT F117; WMT F241.
Lecture + Lab + Other: 2 + 3 + 0

WMT F117 Oxy-Acetylene Welding and Cutting
3 Credits
Safe oxyacetylene welding techniques and procedures of common metals. Welding of these metals in flat, horizontal, vertical and overhead positions. Attendance at first two class meetings is mandatory.
Lecture + Lab + Other: 2 + 5 + 0
WMT F130  Shielded Metal Arc Welding  
1-3 Credits  
All positions for multiple pass fillet welds. Study in shielded metal arc (SMAW) focused on vertical, horizontal, and overhead positions with multiple passes using different techniques.  
**Prerequisites:** WMT F103; WMT F105.  
*Lecture + Lab + Other:* 1-3 + 0 + 0

WMT F140  Metal Fabrication  
1-3 Credits  
Offered As Demand Warrants  
Metal fabrication done by hand and with the aid of equipment is the focus of this class. Plan, layout, bend, form raw metal and fabricate metal projects. Attendance at first two classes is mandatory.  
**Prerequisites:** WMT F103; WMT F105; WMT F160; or permission of instructor.  
*Lecture + Lab + Other:* 1.5 + 5.5 + 0

WMT F150  Gas Tungsten Arc Welding  
1-3 Credits  
Use of tungsten and argon gas for aluminum and stainless steel gas welding (formerly called Heliaarc or TIG. This is an entry level gas tungsten arc welding class concentrating on aluminum. Materials will be welded in all four welding positions.  
*Lecture + Lab + Other:* 1.5 + 5.5 + 0

WMT F160  Gas Metal Arc Welding  
1-3 Credits  
Offered As Demand Warrants  
Prepares student to work with wire-feed processes. Gas metal arc welding focuses on ferrous and nonferrous metals welded in all positions. Attendance at first two classes is mandatory.  
*Lecture + Lab + Other:* 1.5 + 5.5 + 0

WMT F206  Heat Treating/Metal Finishing/Knife Making II  
3 Credits  
Second level of knife making and heat treating using more complex metals and additional equipment. Must have excellent hand-eye coordination. Attendance at first class is mandatory.  
**Recommended:** WMT F106, WMT F117, WMT F241.  
*Lecture + Lab + Other:* 2 + 2 + 0

WMT F210  Pipe Welding  
3 Credits  
Prepare and weld pipe in an uphill or downhill position.  
**Prerequisites:** Permission of instructor.  
*Lecture + Lab + Other:* 2 + 3.5 + 0

WMT F241  Gas Tungsten Arc and Gas Metal Arc Welding  
3 Credits  
Entry-level gas tungsten arc welding concentrating on aluminum. Materials will be welded in all positions. Gas metal arc welding focuses on ferrous and nonferrous metals welded in all positions. Attendance at first two class meetings is mandatory.  
*Lecture + Lab + Other:* 1.5 + 5.5 + 0

WMT F290  Welding Proficiency Maintenance  
3 Credits  
Maintenance of a high degree of welding proficiency through practice of previously-learned processes with an emphasis on AWS welding certification standards.  
**Prerequisites:** WMT F130; WMT F140; or permission of instructor.  
*Lecture + Lab + Other:* 2 + 4.5 + 0

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**Wildlife (WLF)**

WLF F101  Survey of Wildlife Science  
1.5 Credits  
Offered Fall  
An introduction to wildlife biology for conservation and management. Lectures will describe the research of local wildlife biologists and the programs of management agencies. Weekend field trips will be used to introduce practical problems and approaches in wildlife science.  
*Lecture + Lab + Other:* 1 + 0 + 1.5

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 or Co-requisites:** WLF F101; MATH F151X or MATH F122X; or permission of the instructor.  
*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.  
**Prerequisites:** Permission of instructor.  
*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 or equivalent; or permission of instructor.  
**Recommended:** BIOL F310; BIOL F317.  
*Lecture + Lab + Other:* 2 + 3 + 0

WLF F322  Principles and Techniques of Wildlife Management  
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; ENGL F111X; ENGL F211X or ENGL F213X.  
*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 or permission of instructor.  
Lecture + Lab + Other: 3 + 0 + 0

WLF F425  Ecology and Management of Birds  
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; COMM F131X or COMM F141X; WLF F322; or permission of instructor.  
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 or equivalents; or permission of instructor.  
**Recommended:** BIOL/NRM F277.  
**Cross-listed with** BIOL F433.  
Stacked with BIOL F633 and WLF F633.  
Lecture + Lab + Other: 3 + 0 + 0

WLF F460  Wildlife Nutrition  
(O/2)  
4 Credits  
Offered Fall  
The energy nutrient requirements of vertebrate animals in relation to the ecology, physiology and life history. Concepts and techniques used by wildlife biologists to understand relationships between wild animals and their habitats. Techniques for constructing energy and nutrient budgets of wild animals and applications of these budgets to population level processes and habitat management.  
**Prerequisites:** COMM F131X or COMM F141X; BIOL F310; BIOL F371; or permission of instructor.  
**Cross-listed with** BIOL F459.  
Stacked with BIOL F659; WLF F660.  
Lecture + Lab + Other: 3 + 3 + 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 or equivalent; COMM F121X or COMM F131X or COMM 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; ENGL F111X; ENGL F211X or ENGL F213X; or permission of instructor.  
**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; or permission of instructor.  
**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; permission of instructor.  
**Cross-listed with** BIOL F604.  
Lecture + Lab + Other: 3 + 0 + 0

WLF F614  Foraging Ecology  
2 Credits  
Offered Spring Odd-numbered Years  
The dynamics of herbivory, emphasizing the foraging process and including mechanisms of feeding, feeding behavior, habitat and plant selection, physiological influences on feeding, plant and community level responses, plant defenses against herbivory and management of plant-herbivore systems.  
**Prerequisites:** Graduate standing; or permission of instructor.  
**Cross-listed with** BIOL F614.  
Lecture + Lab + Other: 2 + 0 + 0
WLF F622  Current Issues in Conservation Biology  
3 Credits  
Offered Spring Odd-numbered Years  
Critical discussion of contemporary issues concerning extinction patterns, population viability and the preservation, design and management of habitats for populations/species of concern. Stresses integration of principles and policies into strategies for biological conservation.  
Prerequisites: BIOL F471 or WLF F410; graduate standing; or permission of instructor.  
Cross-listed with BIOL F622.  
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 F362; BIOL F371 or equivalents; or permission of instructor.  
Recommended: BIOL/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 analyses. 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; or permission of instructor.  
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 or permission of instructor.  
Lecture + Lab + Other: 0 + 0 + 1-6

WLF F692P  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 or permission of instructor.  
Lecture + Lab + Other: 0 + 0 + 1-6

Women's and Gender Studies (WGS)  

WGS F201X  Introduction to Women's and Gender Studies  
(s)  
3 Credits  
An interdisciplinary introduction to the field of women's and gender studies, exploring 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 multicultural 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 Fall Odd-numbered Years  
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism.  
Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor.  
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.  
Cross-listed with SOC F320.  
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; ENGL F211X or ENGL F213X.  
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: ENGL F111X; ENGL F211X or F213X or permission of instructor; ENGL/FL F200X.  
Recommended: HIST F121, F122 or 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 F100X or SOC F201X or PSY F101X or WGS F201X; or permission of instructor.  
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: ENGL F111X.  
Recommended: ENGL F211X.  
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, masculinities and violence, and women professionals in the justice system.  
Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X or permission of instructor; JUST F110X; 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 or permission of instructor.  
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; ENGL F111X; ENGL F211X or ENGL F213X; SOC F100X; 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 Practice  (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: ENGL F111X; ENGL F211X or ENGL F213X; SWK F103X or SOC F100X; or permission of instructor.  
Cross-listed with SWK F350.  
Lecture + Lab + Other: 3 + 0 + 0
Prerequisites: Western ideas about women and gender. We will also delve into non-western ideas, especially as these critique sexual orientation.

Present. Although we will mostly focus on western theoretical work, our analysis encompassing issues of gender as well as class, race, age and feminist theoretical ideas about women and gender through to the present. From a feminist, multi-culturalist perspective using a broad feminist studies. We will start our exploration in the late 18th century, and follow accurately the media reflects our society demographically. Presented psychology of women interpersonally and intrapsychically examined across cultures. 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. Cross-listed with COMM F351. Offered Fall

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. Cross-listed with COMM F313X or COMM F414X, PSY F101X or WGS F201X; or permission of instructor.

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

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, multi-culturalist perspective using a broad feminist analysis encompassing issues of gender as well as class, race, age and sexual orientation.

Cross-listed with COMM F313X or COMM F414X; junior standing.

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.

Cross-listed with WGS F201X; or permission of instructor.

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 through the medieval, Baroque Classical, and Romantic periods with special emphasis on composers of the 20th-century.

Prerequisites: ENGL F111X; ENGL F211X or ENGL F213X; junior standing or permission of instructor.

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

Seminar on the history of East Asia with special emphasis on the experiences of women and 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: HIST F100X, ENGL F211X or ENGL F213X; or permission of instructor.

Recommended: HIST F122X and/or 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. Course may be repeated for credit when content varies.

Prerequisites: A lower-division history course; junior standing; or permission of instructor.

Cross-listed with HIST F424.

Lecture + Lab + Other: 3 + 0 + 0

WGS F433 Women, Gender and Sexuality in Language, Literature and Culture:

3 Credits

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: ENGL F211X or ENGL F213X; 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 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 or permission of instructor.

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 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 women’s and men's experiences in their cultural variety are presented.
Prerequisites: ANTH F215 or WGS F201X; or permission of instructor.
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

WGS F492  Seminar
1-3 Credits
Lecture + Lab + Other: 1-3 + 0 + 0

WGS F492P  Seminar
1-3 Credits
Lecture + Lab + Other: 1-3 + 0 + 0
# UAF Administration, Faculty and Emeriti

## UA Board of Regents

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## UAF Administration

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<td>International Arctic Research Center</td>
<td>Hajo Eicken, Director</td>
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<tr>
<td>Liberal Arts, College of</td>
<td>Todd Sherman, Dean</td>
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<td>Libraries</td>
<td>Suzan Hahn, Interim Dean</td>
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<tr>
<td>Management, School of</td>
<td>Mark Hermann, 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>Aldona Janaitis, Director</td>
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<td>Natural Resources and Extension, School of</td>
<td>David Valentine, Director of Academic Programs</td>
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<td>Natural Science and Mathematics, College of</td>
<td>Paul Layer, Dean</td>
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<td>Northern Engineering, Institute of</td>
<td>William Schnabel, Interim 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>Deborah McLean-Nelson, Director</td>
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<td>--Chukchi Campus</td>
<td>Linda Joule, Director</td>
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<td>--Community and Technical College</td>
<td>Michele Stalder, Dean</td>
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<td>--Interior Alaska Campus</td>
<td>Bryan Uher, Acting 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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<tr>
<td>University and Student Advancement</td>
<td>Michael Sfraga, Vice Chancellor</td>
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UAF Administration:
- Interim Chancellor: Dana Thomas
- Provost: Susan Henrichs, Executive Vice Chancellor, Academic Affairs
- Administrative Services: Kari Burrell, Vice Chancellor
- Arctic Biology, Institute of: Brian Barnes, Director
- Cooperative Extension Service: Fred Schlutt, Vice Provost for Extension and Outreach, Director
- Diversity and Equal Opportunity: Kevin Calderara, Interim Director
- Education, School of: Steve Atwater, Interim Dean
- eLearning & Distance Education: Carol Gering, Executive Director
- Engineering and Mines, College of: Doug Goering, Dean
- Facilities Services: Scott Bell, Associate Vice Chancellor
- Fisheries and Ocean Sciences, School of: S. Bradley Moran, Dean
- Geophysical Institute: Robert McCoy, Director
- Graduate School: Michael Castellini, Associate Dean
- Information Technology: Karl Kowalski, Chief Information Technology Officer
- International Arctic Research Center: Hajo Eicken, Director
- Liberal Arts, College of: Todd Sherman, Dean
- Libraries: Suzan Hahn, Interim Dean
- Management, School of: Mark Hermann, Dean
- Marine Science, Institute of: Jennifer Reynolds, Director
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- Natural Science and Mathematics, College of: Paul Layer, Dean
- Northern Engineering, Institute of: William Schnabel, Interim Director
- Research: Larry Hinzman, Vice Chancellor
- Rural and Community Development, College of: Evon Peter, Vice Chancellor for Rural, Community and Native Education
  - Bristol Bay Campus: Deborah McLean-Nelson, Director
  - Chukchi Campus: Linda Joule, Director
  - Community and Technical College: Michele Stalder, Dean
  - Interior Alaska Campus: Bryan Uher, Acting Director
  - Kuskokwim Campus: Mary Ciuniq Pete, Director
  - Northwest Campus: Bob Metcalf, Director
- University and Student Advancement: Michael Sfraga, Vice Chancellor
Governance

ASUAF
Faculty Senate
Staff Council

Colby Freer, President (2016-2017)
Orion Lawlor, President (2016-2017)
Faye Gallant, President (2016-2017)

Faculty

The date following each name designates the time of original appointment to university faculty. (Dates of resignations and reappointments are not indicated.) A second date in parentheses follows each member’s present rank and indicates the beginning of service in that rank. The abbreviation that follows this second date 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
CDR College of Natural Science and Mathematics Division of Research
CEM College of Engineering and Mines
CES Cooperative Extension Service
CGC Center for Global Change and Arctic System Research
CHANC Chancellor’s Office
CIFAR Cooperative Institute for Arctic Research
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
FS Facilities Services
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
OIT Office of Information Technology
PROV Provost’s Office
SFOS School of Fisheries and Ocean Sciences
SNRE School of Natural Resources and Extension
SOE School of Education
SOM School of Management
USA University and Student Advancement
VCAS Vice Chancellor for Administrative Services
WERC Water and Environmental Research Center

A

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