Community Based Science

College of Indigenous Studies
Community Based Science Department (https://www.uaf.edu/rural/academics/departments/)
907-474-2748

Community Based Science Department
Associate of Science

The Associate of Science degree represents the completion of a broad-based course of study with an emphasis on the sciences. This degree may serve as a stepping-stone to a science-related baccalaureate program. You may earn only one A.S. degree.

Minimum Requirements for Associate of Science Degree: 60 credits

Learn more about the associate of science degree (https://www.uaf.edu/academics/programs/associates/associate-of-science.php), including an overview of the program, career opportunities and more.

O.H.M., One Health Master’s
Brief Statement of Program

One Health encompasses the relationship between human health, animal health, and the health of the environment and holds that these entities are inextricably linked to the extent that none can be optimal unless they are all optimal. One Health is interdisciplinary and inclusive; it invites the full participation of community members working together with scientists, health practitioners, tribal leaders, and government agency personnel to identify problems and create realistic, sustainable solutions to those problems. This program will provide knowledge and problem-solving skills for individuals who will be involved in managing One Health challenges at the community, state, federal, and international levels. Implementing a constructionist approach and using the knowledge and skills developed in the coursework, the program culminates in the creation of a management plan to address a problem that students and community members have identified. The plan will be presented to stakeholders and content experts in a public forum.

Mission Statement

The One Health Master’s Degree (OHM) educates students to use a constructionist approach to address issues in the Circumpolar North that are at the intersection of human, animal, and environmental health. Graduates of the program will be able to engage key stakeholders to develop and implement realistic management plans that can be implemented in communities across the Circumpolar North.

Vision Statement

Within the next 10 years, individuals who have a comprehensive understanding of One Health and an ability to utilize a community-centered, constructionist approach to problem-solving are likely to emerge as leaders in solving a wide array of problems in the Circumpolar North. UAF’s One Health Master’s will be recognized as a leader in educating these individuals.

We anticipate that this degree will attract students who are already engaged or interested in working in their communities to address One Health issues and that it will also attract students seeking entrance to medical or veterinary schools who want to deepen their understanding of One Health and incorporate the paradigm and problem-solving skills into their future medical careers. For this reason, we propose two concentrations in the One Health Master’s: a Community Advocacy through Co-Production of Knowledge Concentration and a Biomedical Concentration.

The 19 credits in the core of this degree will provide training in communication, epidemiology, conflict resolution, cultural awareness, and skills for gathering pertinent data. The capstone sequence of courses (OH F615, OH F620 and OH F621) will culminate in utilizing that knowledge and those skills to identify the root causes of a One Health problem and build a comprehensive management plan that addresses the root causes and propose a realistic pathway to solving the problem. This interdisciplinary, integrative, constructionist approach will involve One Health students working with key stakeholders and community members to identify the problem, interview key stakeholders and knowledge bearers in both traditional knowledge and Western scientific knowledge, gather data from reliable sources, and utilizing various planning techniques such as OH SMART and scenarios building, create a management plan to address and solve or mitigate the problem.

Because it is central to the One Health Master’s Degree, this 19-credit core will be required for students in both concentrations. Additional courses are proposed for the two concentrations: courses in veterinary medicine and biology for those in the Biomedical Concentration and courses in social sciences for those in the Community Advocacy through Co-Production of Knowledge Concentration. Successful One Health professionals will need to be aware of the social, cultural, governmental, historical, and scientific realities that influence One Health issues and their solutions. To accommodate this breadth, we have provided an array of courses from multiple disciplines. With guidance from the O.H.M. faculty and staff, students will select courses that best complement their previous education and experience, and dovetail most closely with their future education and career choices.

The One Health paradigm was developed in the veterinary medical profession where it focused largely on the difficulties of monitoring and managing zoonotic diseases. It has grown in the past few years to become a framework for solving a wider array of problems. Our program is unique in that identifying and resolving issues begins at the community level and works outward, engaging stakeholders from local, state, national, and even international agencies. One Health is inherently interdisciplinary. The focus of our One Health Master’s is on communicating about One Health challenges and proposing solutions to those challenges; it does not rely on all participants having in-depth scientific knowledge, but instead on gathering expertise and communicating effectively to provide solutions. The program’s strength is in creating a community of diverse participants committed to examining and solving One Health problems by drawing information and data from cultural, social science, natural science, and medical perspectives.

This program is delivered online in both asynchronous and synchronous formats.

Minimum Requirements for One Health Master’s Degree: 30 credits

Occupational Endorsement, Ethnobotany

The coursework for the ethnobotany occupational endorsement program was developed with input from the students, Elders and stakeholders who participated in the ethnobotany certificate program and provides a strong interdisciplinary foundation for understanding what students are seeking from ethnobotany coursework to enhance their opportunities both in the workplace and for professional development. Currently, no other program exists in Alaska that prepares students with a basic understanding of botany and cultural uses of plants, including the skills required to collect plants in the field, conduct interviews using culturally and scientifically appropriate...
methods and provide hands-on opportunities to research, implement and report (online, orally and in writing) on student-designed projects.

Minimum Requirements for Ethnobotany Occupational Endorsement: 17 credits

Learn more about the ethnobotany occupational endorsement ([https://www.uaf.edu/academics/programs/occupational-endorsements/ethnobotany.php](https://www.uaf.edu/academics/programs/occupational-endorsements/ethnobotany.php)), including an overview of the program, career opportunities and more.

**Occupational Endorsement, High Latitude Range Management**
The high latitude range management occupational endorsement program combines academic and Indigenous knowledge at the local, national and international levels to offer courses that help prepare students for entry-level jobs in the field of natural resources and livestock production, including reindeer husbandry. The program operates in cooperation with regional communities and organizations with involvement from statewide industry representatives and educators as part of the program’s commitment to responding to the unique needs of rural Alaska communities, particularly with respect to local resources. The Sámi Education Institute of Finland manages the international BEBO organization, which promotes the languages and cultures of reindeer herding peoples in the Arctic and extends cooperation specifically to the HLRM program.

Minimum Requirements for High Latitude Range Management Occupational Endorsement: 13 credits

**Occupational Endorsement, Rural Surface Water Quality Testing**
This program provides education and training to conduct water quality monitoring and assessment by developing and following a Quality Assurance Project Plan. Coursework 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 a science- and engineering-related certificate, associate or bachelor’s program.

Minimum Requirements for Rural Surface Water Quality Testing Occupational Endorsement: 9 credits

**Occupational Endorsement, Rural Waste Management Spill Response**
The occupational endorsement in rural waste management and spill response provides education and training on how to handle the management of municipal waste. Emphasis is placed upon 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.

Minimum Requirements for Rural Waste Management Spill Response Occupational Endorsement: 10 credits

**Occupational Endorsement, Sustainable Energy**
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 stepping stone into a science- and engineering-related certificate, associate or bachelor’s program.

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.

Minimum Requirements for Sustainable Energy Occupational Endorsement: 12 credits

Learn more about the sustainable energy occupational endorsement ([https://www.uaf.edu/academics/programs/occupational-endorsements/sustainable-energy.php](https://www.uaf.edu/academics/programs/occupational-endorsements/sustainable-energy.php)), including an overview of the program, career opportunities and more.

**Certificate, High Latitude Range Management**
An HLRM program certificate represents the completion of 31 credits delivered via hands-on applied field, laboratory and classroom sessions, with supplementary virtual instruction. The curriculum consists of the inventory and monitoring of Northern animal and plant populations, domesticated ungulate husbandry and health, research and report writing, and the opportunity to formulate a reindeer business plan specific to community development needs. Indigenous knowledge and the application of the scientific method will be used to stimulate learning and to better prepare students for entry-level natural resource jobs or to become reindeer entrepreneurs.

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

Students should have a high school diploma or GED and an interest in science-related fields. It is strongly recommended that students seeking admission to this program have completed two high school lab-based science courses, preferably in biology, chemistry or physics.

The HLRM certificate may serve as a bridge to a variety of natural science associate and baccalaureate programs.

Minimum Requirements for High Latitude Range Management Certificate: 31 credits

Learn more about the high latitude range management certificate ([https://www.uaf.edu/academics/programs/certificates/high-latitude-range-management.php](https://www.uaf.edu/academics/programs/certificates/high-latitude-range-management.php)), including an overview of the program, career opportunities and more.

**Programs**

**Degrees**
- Associate of Science ([https://catalog.uaf.edu/associates/associate-of-science/](https://catalog.uaf.edu/associates/associate-of-science/))
- One Health Master’s ([https://catalog.uaf.edu/masters/one-health-masters/](https://catalog.uaf.edu/masters/one-health-masters/))
**Occupational Endorsements**
- O.E.C., Ethnobotany (https://catalog.uaf.edu/endorsements/ethnobotany/)
- O.E.C., High Latitude Range Management (https://catalog.uaf.edu/endorsements/high-latitude-range-management/)
- O.E.C., Rural Surface Water Quality Testing (https://catalog.uaf.edu/endorsements/rural-surface-water-quality-testing/)
- O.E.C., Sustainable Energy (https://catalog.uaf.edu/endorsements/sustainable-energy/)

**Certificate**
- Certificate, High Latitude Range Management (https://catalog.uaf.edu/certificates/high-latitude-range-management/)

**Minor**
- Minor, Ethnobotany (https://catalog.uaf.edu/minors/ethnobotany/)