# Fairbanks Campus Academic Calendar

## Fall Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1991</th>
<th>1992</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor Day</td>
<td>Mon., Sept. 2</td>
<td>Mon., Sept. 7</td>
</tr>
<tr>
<td>Early Orientation for New Students</td>
<td>Sun.-Wed., Sept. 1-4</td>
<td>Sun.-Wed., Aug. 30-Sept. 2</td>
</tr>
<tr>
<td>Registration materials and advisers available</td>
<td>Tues.-Wed., Sept. 3-4</td>
<td>Tues.-Wed., Sept. 1-2</td>
</tr>
<tr>
<td>Registration: fee payment</td>
<td>Thurs.-Wed., Sept. 5-6, 9-11</td>
<td>Thurs.-Wed., Sept. 3-4, 7-9</td>
</tr>
<tr>
<td>First day of instruction</td>
<td>Thurs., Sept. 5</td>
<td>Thurs., Sept. 3</td>
</tr>
<tr>
<td>Last day of late registration</td>
<td>Wed., Sept. 11</td>
<td>Thurs., Sept. 10</td>
</tr>
<tr>
<td>Last day to apply for fall graduation</td>
<td>Tues., Oct. 15</td>
<td>Thurs., Oct. 15</td>
</tr>
<tr>
<td>Mid-term grades for freshmen due</td>
<td>Oct. 17-30</td>
<td>Oct. 16-29</td>
</tr>
<tr>
<td>Last day for student-initiated withdrawals</td>
<td>Wed., Nov. 6</td>
<td>Thurs., Nov. 5</td>
</tr>
<tr>
<td>Thanksgiving holidays</td>
<td>Thurs.-Sun., Nov. 28- Dec. 1</td>
<td>Thurs.-Sun., Nov. 26-29</td>
</tr>
<tr>
<td>Last day of instruction</td>
<td>Fri., Dec. 13</td>
<td>Mon., Dec. 14</td>
</tr>
<tr>
<td>Study day</td>
<td>None</td>
<td>Tues., Dec. 15</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Mon.-Thurs., Dec. 16-19</td>
<td>Wed.-Sat., Dec. 16-19</td>
</tr>
<tr>
<td>Grades due to Admissions and Records</td>
<td>3 p.m., Mon., Dec. 23</td>
<td>3 p.m., Wed., Dec. 23</td>
</tr>
</tbody>
</table>

## Spring Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1992</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Orientation for New Students</td>
<td>Mon.-Tues., Jan. 13-14</td>
<td>Mon.-Tues., Jan. 11-12</td>
</tr>
<tr>
<td>Registration materials and advisers available</td>
<td>Mon., Jan. 13</td>
<td>Mon., Jan. 11</td>
</tr>
<tr>
<td>First day of instruction</td>
<td>Thurs., Jan. 16</td>
<td>Thurs., Jan. 14</td>
</tr>
<tr>
<td>Last day of late registration</td>
<td>Wed., Jan. 22</td>
<td>Wed., Jan. 20</td>
</tr>
<tr>
<td>Last day to apply for spring graduation</td>
<td>Fri., Feb. 14</td>
<td>Mon., Feb. 15</td>
</tr>
<tr>
<td>Mid-term grades for freshmen due</td>
<td>Feb. 20-Mar. 4</td>
<td>Feb. 20-Mar. 36</td>
</tr>
<tr>
<td>Spring recess</td>
<td>Mon.-Sun., Mar. 16-22</td>
<td>Mon.-Sun., Mar. 8-14</td>
</tr>
<tr>
<td>All Campus Day (no classes)</td>
<td>Fri., Apr. 24</td>
<td>Fri., Apr. 23</td>
</tr>
<tr>
<td>Last day of instruction</td>
<td>Fri., May 1</td>
<td>Fri., Apr. 30</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Mon.-Thurs., May 4-7</td>
<td>Mon.-Thurs., May 3-6</td>
</tr>
<tr>
<td>Commencement</td>
<td>Sun., May 10</td>
<td>Sun., May 12</td>
</tr>
<tr>
<td>Grades due to Admissions and Records</td>
<td>3 p.m., Wed., May 13</td>
<td>3 p.m., Wed., May 12</td>
</tr>
</tbody>
</table>

*Academic calendars for UAF's branch campuses can be found on Pages 8-9.*
Accreditation
- Commission on Colleges of the Northwest Association of Schools and Colleges

Specialized Accreditations
- Accreditation Board for Engineering and Technology
- Accrediting Council on Education in Journalism and Mass Communication
- Alaska State Board of Education through National Association of State Directors of Teacher Education and Certification
- American Assembly of Collegiate Schools of Business
- American Association of Museums
- American Chemical Society
- Council on Social Work Education
- National Association of Schools of Music
- National Council for Accreditation of Teacher Education

About this Catalog
This catalog offers you a complete guide to studying at the University of Alaska Fairbanks. It includes information on admission and graduation requirements, as well as program and course listings for certificate, associate and bachelor's degree students. You should refer to this catalog for clarification on what's required of you as a UAF student, and for specific information about what's offered on campus. A graduate catalog is also available; to request a copy, contact Admissions and Records.

If you're a current or enrolling student, you should also refer to the Class Schedule or the Community Bulletin, which list classes offered, their locations, and when they meet. Schedules and bulletins are available a few weeks before semesters begin. The student handbook, the "A Book," also has information on campus resources, programs and regulations. You can get a copy of the "A Book" from the Student Activities Office in Wood Center.

If you need more information, refer to the directory on Page 2 for a list of UAF offices and phone numbers.
Questions? Call or write

Information ........................................ 474-7211

Academic Affairs, 3rd floor Signers’ Hall ........ 474-7096
Academic Computing, 403 Library ................. 474-7191
Administration, Vice Chancellor for, .............. 474-7340
Admissions and Records, 1st floor Signers’ Hall ... 474-7251

From within Alaska ....................................... (800) 478-1UAF

Advising, 5th floor Gruening ......................... 474-6396
Agricultural and Forestry Experiment Station, 309 O’Neill ... 474-7188
Agricultural and Natural Resources Management School of, 309 O’Neill ... 474-7188
Alaska Native Human Resource Development Program, 707 A Street, Room 205, Anchorage, AK 99501 ... 272-9531
Alaska Teacher Placement, M-B-S Complex .............. 474-6644
Alumni Relations, 201 Constitution Hall ............... 474-7211
Arctic Biology, 5th floor of, 311 Irving ................. 474-7464
Arctic Sivunmun Ilisagvik College, Box 69, Barrow, AK 99723 ... 852-7337
Associated Students of the University of Alaska Fairbanks, Wood Center ...................... 474-7255
Athletics and Recreation, Patty Center ............... 474-7205
Bookstore, 2nd floor Constitution Hall ............... 474-7348
Bristol Bay Campus, Box 1070, Dillingham, AK 99766 ... 852-5483
Business Office, 1st floor Signers’ Hall ................ 474-7551
Career and Continuing Education, School of, Downtown Center ............. 451-2223
Career Services, 5th floor Gruening ................... 474-7506
Chancellor’s Office, 3rd floor Signers’ Hall ............ 474-7112
Chukchi Campus, Box 297, Kotzebue, AK 99752 ... 442-3400
Clubs and Organizations, Wood Center ............... 474-6027
Conferences and Special Events, 117 Eielson ........... 474-7800
Cooperative Extension Service, Arctic Health Research Building .......... 474-7246
Delta Learning Center, Box 412, Delta junction, AK 99737 ... 895-4292
Developmental Office of, 316 Signers’ Hall .......... 474-6402
Developmental Studies, Downtown Center ............ 451-2223
Distance Education, Center for, 129 Red Building .......... 474-5333
Downtown Center, 510 Second Ave., Fairbanks, AK 99701 .... 451-2223
Eldershostel, 116 Red Building ......................... 474-5359
Employee Relations, 101 Eielson ................. 474-7349
Engineering, School of, 539 Duckering ................. 474-7330
Environmental Health and Safety, 101 Eielson .......... 474-6206
Equal Employment Opportunity, 101 Eielson .......... 474-7919
Faculty Senate, 312 Signers’ Hall ............... 474-7266
Financial Aid, 5th floor Gruening ..................... 474-7256
Fisheries and Ocean Sciences, School of, 217 O’Neill ........ 474-7531
Fishery Industrial Technology Center, 900 Trident Way, Kodiak, AK 99615 ... 486-6034
Fort Yukon Center, Box 94, Ft. Yukon, AK 99740 ... 662-2521
Galena Center, Box 181, Galena, AK 99741 ... 656-1280
Geophysical Institute, Elvey Building ................. 474-7558
GNOSIS (Library Computing System), 409 Library ........ 474-6310
Graduate School, 308 Signers’ Hall .................... 474-7464
Health and Counseling, Center for, 2nd floor HS&S Building .... 474-7043
Honors Program, 515 Copper Lane ....................... 474-6612
Housing Office, M-B-S Complex ...................... 474-7247
Hutchison Career Center, 3750 Geist Road, Fairbanks, AK 99701 ... 479-2261
Interior Campus, Red Building ....................... 474-5439
International Student Adviser, 5th floor Gruening ........ 474-7317
Juneau Campus for Fisheries and Ocean Sciences, 11120 Glacier Hwy, Juneau, AK 99801 ... 789-4441
KSUA-FM, 303 Constitution Hall ....................... 474-7054
KUAC-FM and -TV, 208 Fine Arts/Theater ............. 474-7491
Kuskokwim Campus, Box 368, Bethel, AK 99559 ... 543-4500
Learning Resource Center, Downtown Center ............ 451-7223
Liberal Arts, College of, 405 Gruening ................ 474-7254
Library, Ramsonan ....... 474-7403
Management, School of, 101 Bunnell ................. 474-7461
Marine Advisory Program, 2221 E. Northern Lights Blvd., Suite 220, Anchorage, AK 99508 ... 274-9691
Marine Science, Institute of, 217 O’Neill .......... 474-7531
McGrath Center, Box 209, McGrath, AK 99627 ... 524-3074
Mineral Engineering, School of, 208 Brooks .......... 474-7366
Mineral Industry Research Laboratory, 210 O’Neill .... 474-7135
Moose Creek Center, 3481 Old Richardson Hwy, North Pole, AK 99702 ... 489-4421
Museum, UA ............................................. 474-7050
NANA House ............................................ 474-5265
Native Studies, 5th floor Gruening ...................... 474-7181
Natural Sciences, College of, 465 Duckering .......... 474-7941
Nenana Center, Box 489, Nenana, AK 99760 ... 632-9571
Northern Engineering Institute ......................... 474-7775
Northwest Campus, Box 400, Nome, AK 99762 ... 443-2201
Patty Center ............................................. 474-5057
Petroleum Development Laboratory, 425 Duckering ........ 474-7743
Polar Ice Coring Office, 305 O’Neill .................... 474-5585
Pub, Wood Center ........................................ 474-7666
Research, Vice Chancellor for, 306 Signers’ Hall .......... 474-7314
Residence Life, 5th floor Gruening ..................... 474-7317
Rural Alaska Honors Institute, 508 Gruening ........... 474-7181
Rural Alaska, College of, 708 Gruening ................. 474-7106
Rural Student Services, 5th floor Gruening .......... 474-7871
Sea Grant, 138 Irving II .................................. 474-7086
Security, HS&S Building .................................. 474-7721
Small Business Development Center ..................... 456-1701
Student Affairs, 5th floor Gruening ..................... 474-7317
Student Development and Learning Center, Downtown Center ............. 451-7223
Summer Sessions, 2nd floor Signers’ Hall ............... 474-7021
Sun Star, Wood Center .................................... 474-7540
Testing Services, 514 Gruening ......................... 474-5277
Tok Center, Box 464, Tok, AK 99780 ... 883-5613
University Relations and Institutional Advancement, 210 Signers’ Hall ............. 474-7581
Veterans’ Information, 1st floor Signers’ Hall ........... 474-7521
Wood Center .............................................. 474-7211

The address for all Fairbanks campus departments is: University of Alaska Fairbanks Fairbanks, Alaska 99775

The area code for UAF offices is (907).
ROTC cadet Frank Egnaty receives instructions on mapping from Cadet Major Kimberly Keaveny.
The University of Alaska Fairbanks Experience

In 1992, the University of Alaska Fairbanks will commemorate its 75th anniversary. The year will be full of celebrations and the opportunity to consider the arduous task Dr. Charles Bunnell, the institution’s first president, began in 1917, when UAF was born. It wasn’t called UAF back then; it was the Alaska Agricultural College and School of Mines, created by a special act of the Alaska Territorial Legislature. In 1922 the college opened, with six faculty members and six students. A year later, commencement was held, in honor of the school’s first graduate.

As Alaska grew, so did the institution. In 1935, the Territorial Congress decided the school had graduated from a college to something more, and the “University of Alaska” was born.

World War II brought many changes to Alaska. Battles were fought on Alaska soil, the Alaska Highway was built, and the activity spawned the first major migration of people into the state since the gold rush. As people moved to Alaska, so did money, ideas and energy.

In 1946, the Geophysical Institute was established by the U.S. Congress. GI has since earned an international reputation for its studies of the earth and the physical environment at high latitudes. It also operates the Poker Flat Research Range, the only university-owned rocket range in the world.

In 1947, the first summer session was held at the university, symbolizing its growth into a year-round center for knowledge. Ten years later, the university awarded its first Ph.D. All this at the University of Alaska, when Alaska itself had yet to become a state.

Statehood changed the political system for the people who inhabited the vast land mass and waterways known as Alaska. Alaska’s constitution was hammered out in what’s now Constitution Hall on the UAF campus, and the document was signed, fittingly enough, in stately Sigmund’s Hall, now the home of the UAF administration. Alaska’s admission into the Union in 1959 also coincided with major changes at the university itself.

In 1960, the Institute of Marine Science, a unit of the School of Fisheries and Ocean Sciences, was established by the Alaska Legislature. Its offices are on the main UAF campus, with its principal shore facility in Seward. The Seward Marine Center is also the home port of the R/V Alpha Helix, a 133-foot research vessel operated by IMS for the National Science Foundation.

Three years later, the Alaska Legislature created the Institute of Arctic Biology. IAB manages the Large Animal Research Station just north of campus, the home of musk oxen, caribou and reindeer.

As the Fairbanks campus expanded, so did the educational needs of the rest of the state. In 1975, the University of Alaska statewide system was created. Campuses in Anchorage and Juneau were given their own central staff and chancellor, with the statewide administration, and the overall university president, still located in Fairbanks. This period of consolidation coincided with rapid expansion and improvement at the university’s main campus in Fairbanks.

The University of Alaska Museum, the most popular man-made visitor attraction in the state, moved into the Otto Geist Building in 1980. More than 100,000 people visit the museum every year, each soaking in just a small portion of the substantial collections organized and displayed at the museum.

In 1981, enrollment topped 5,000 students for the first time. The university also began to emphasize its shared scholarship and global education effort in a series of agreements signed with schools in Japan, Denmark, Canada, the People’s Republic of China and the U.S.S.R.

Today, UAF continues to grow, both in size and stature. In addition to the main campus in Fairbanks, UAF has branch campuses in Bethel, Dillingham, Kotzebue and Nome. UAF provides an important resource to rural Alaskans with its education centers in Delta Junction, Fort Yukon, McGrath, Nenana, Tok and Unalaska.

UAF’s School of Fisheries and Ocean Sciences combines programs in Juneau and Kodiak with those in Fairbanks, and administers the Marine Advisory Program. The statewide Cooperative Extension Service, with 10 field offices, is also headquartered at UAF. UAF’s public broadcasting stations KUAC-FM and KTV are the first public stations in the state. The stations offer an important resource for students who can get hands-on experience at the facilities.

UAF is the state’s Land Grant, Sea Grant and Space Grant institution. Its rural college has the primary responsibility for Alaska Native education and study, and UAF remains the only university offering doctoral degrees in Alaska. Three colleges and six schools offer more than 70 fields of study, and a wide variety of technical and vocational programs.

As it celebrates 75 years of growing, UAF will continue to expand the frontiers of knowledge and to play a major role in making Alaska—and the world—a better place to live, to learn and to prosper.

Students

UAF students aren’t afraid to be different. The University of Alaska Fairbanks isn’t the right school for everyone, but if it is for you, you can take advantage of small classes, first-rate faculty and access to hands-on research—not to mention some of the most breathtaking scenery in the world.
UAF’s students come from all 50 states and 25 foreign countries, which can make for an exciting educational environment. A freshman from an Alaska village may share insights with a classmate from Tallahassee or even Tokyo in one year, and take advantage of a UAF exchange program located in Canada, China, Denmark, Korea or Japan the next.

As a UAF student, you won’t be bored. There are more than 70 student organizations, and students sponsor the weekly Sun Star newspaper, KSUA-FM radio station and scores of special interest groups.

No matter which UAF campus you attend, your credits are fully transferable if you should move to another. This means that you won’t have to worry about transfer requests and losing credits if you switch campuses.

UAF’s enrollment in the fall of 1990 was 8,380 students; of these, about 3,500 were full-time students. Many of UAF’s students are “non-traditional.” They study at night or after work, and juggle family responsibilities and class studies. Recognizing their needs, UAF offers a wide variety of night and weekend classes.

Some UAF students live in remote areas of the state, but they still “attend” UAF classes. Through distance delivery of classes, using computers, telephones and the latest technology, students can work toward their degrees without ever leaving home.

In short, being “different” is almost normal at UAF. All in all, UAF students are a diverse group who aren’t afraid to be different.

If you’re interested in statistics, here are a few about UAF’s student body:

- 57 percent are female, 43 percent are male
- 69 percent are white, 14 percent are Alaska Native, 6 percent are other minorities, 11 percent are unreported
- 30 is the average age
- 90 percent are Alaska residents, 8 percent are from other states, 2 percent are from foreign countries
- 93 percent are undergraduate students, 7 percent are graduate students

**Faculty**

UAF’s faculty members are among the best in the country, and with a low student/faculty ratio, you’ll get lots of personal attention. You’ll get more one-on-one attention, in fact, than you would at almost any other public university in the country.

Once you’ve chosen a major, you’ll be assigned a faculty member from your academic department as an adviser. Your adviser can help you choose the classes you take each semester, as well as explain various programs and requirements.

It’s been said that “It’s not what you know, but who you know.” At UAF, students get to know their faculty as friends, and not just as the medium through which an endless stream of facts and figures are delivered for future examination.

Education is an individual process, different for every person—and at UAF, that’s what you’ll be—a person, and not just a face in the crowd.

**Main Campus in Fairbanks**

UAF’s main campus is located in Fairbanks, which is near the center of the state. On the 2,250-acre campus are two lakes, 35 miles of ski trails and an arboretum.

If you’re interested in fitness, the main campus has a major intramural sports program, and the Patty Athletic Center offers facilities for handball/racquetball, swimming, ice hockey, weightlifting and riflery.

Whether you like to play or just watch, UAF sponsors intercollegiate athletics teams in men’s and women’s basketball, men’s and women’s cross-country running and skiing, co-ed riflery, men’s ice hockey and women’s volleyball.

As a UAF student on the main campus, you’ll become very familiar with the Wood Center. The center is the focus of many of UAF’s out-of-class activities. With a pub, snack bar, ballroom, lounge and games area, Wood Center is a gathering place for the entire university community.

You’ll find some of the best facilities in the state at UAF. The Davis Concert Hall and theater are among the finest in the Pacific Northwest; whether you’re a performer or a spectator, you’ll find something to suit your taste going on almost every weekend during the academic year. The Rasmuson Library is Alaska’s largest, and offers traditional ways to access library materials, as well as extensive computer databases to extend the library resources beyond the state. Aside from being among the top 10 visitor attractions in the state, the UA Museum is also a student resource; its vast collections are used for demonstration and comparative studies in classrooms and labs.

The Fairbanks campus is the University’s principal research center, with internationally respected research institutes. As an undergraduate, these institutes provide you with an opportunity to see research in action, and perhaps participate in research activities.

UAF’s Downtown Center in Fairbanks is headquarters for the School of Career and Continuing Education. You can take classes at the center which focus on business, computers, office professions and general developmental education. Computer labs and an office lab are also located at the center.

The Hutchison Career Center, located on Geist Road near the main campus, is the home of several vocational/technical programs. With more than 12,000 square feet of shop, classroom and office areas, the space is organized and equipped for skill development. Vocational/technical programs found here include welding, aviation technology, drafting, airframe and powerplant, and diesel/heavy equipment mechanics.

The Interior Campus in Fairbanks services 54 towns and village within the Doyon region and the Aleutians/Pribilof Islands, an area of approximately 200,000 square miles. The Interior Campus is the most decentralized of the College of Rural Alaska campuses. Although the director’s office and some faculty are located at the University of Alaska Fairbanks main campus, there are Interior Campus centers in Fort Yukon, McGrath, Tok and Unalaska. Courses are offered throughout the region via distance delivery, on site by local or itinerant instructors and by correspondence. The campus offers a range of degree programs, including the Associate of Arts and several
Associate of Applied Science vocationally oriented degrees, as well as skill-building and community interest classes.

**Fairbanks Area**

Fairbanks, Alaska's second largest city, is situated on the banks of the Chena River in the heart of Alaska. The UAF campus is only four miles from the downtown business district, and the university is easily accessible via the local bus system and a network of bike trails.

Steeped in a history of riverboat captains and gold seekers, today Fairbanks is the dynamic, thriving city that helped build the Trans-Alaska Pipeline. Here striking contemporary buildings sit side-by-side with log cabins left over from the early part of the century. It's a city where the old quietly blends with the new.

With a population of more than 70,000, the Fairbanks area offers the conveniences of a big city, yet rolling hills and spectacular panoramas are only minutes away.

Literally millions of acres of wilderness surround Fairbanks. Mt. McKinley, the highest mountain in North America, is often visible from many residence hall windows. Whether the sport is canoeing, climbing, running, skiing or fishing, nowhere else compares with Alaska.

**Transportation to Fairbanks**

Fairbanks is easily accessible by both land and air. Anchorage is only 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 to Anchorage and Seattle, as well as to many other destinations.

The Alaska Railroad provides all UAF students with a round trip ticket for the price of a one-way ticket. This rate applies to Summer Session students as well as students attending during the regular sessions of the university. To get this special price, students should ask for the special student rate when they purchase their first ticket. When they get to UAF, students need to have their ticket receipts certified by the Office of Admissions and Records when they pay their fees.

**Branch Campuses**

When the University of Alaska system was restructured in 1987, UAF's instructional, research and public service programs were expanded throughout Alaska. In addition to the main campus in Fairbanks, UAF now has branch campuses in Bethel, Dillingham, Kotzebue and Nome, and administers a number of education center through its Interior Campus. These branches serve rural Alaskans and are central to fulfilling the UAF mission of providing educational opportunities through the state.

No matter which UAF campus you attend, your credits are fully transferable among all UAF campuses. This means that you won't have to worry about transfer requests and losing credits when you switch campuses.

**Bristol Bay Campus in Dillingham** — The Bristol Bay Campus serves 32 villages in an area of approximately 55,000 square miles, with boundaries that stretch south as far as Ivanof Bay, north to Lake Clark and west to Togiak. The campus is located in Dillingham, the region's hub, 322 air miles from Anchorage and 570 air miles from Fairbanks.

For the past few years, the average enrollment at Bristol Bay Campus has been 200 students. The campus offers an Associate of Arts degree in general studies, and course work in support of the UAF Bachelor of Arts degree, as well as vocational courses and non-credit community education programs.

Courses are offered throughout the region through distance delivery, correspondence and itinerant instructors, as well as the more traditional methods.

**Chukchi Campus in Kotzebue** — The Chukchi Campus is located in Kotzebue on the northwest shore of the Baldwin Peninsula, 30 miles above the Arctic Circle. It serves a region of more than 36,000 square miles, about the size of Indiana. In an academic program which emphasizes the associate of arts degree, Chukchi offers about 28 lower division courses each semester.

**Kuskokwim Campus in Bethel** — The Kuskokwim Campus is located in what can most accurately be described as a regional center serving an extended community. Bethel, located 80 miles inland on the Kuskokwim River, is a community of approximately 4,000 and serves as the transportation and service center of the region. Housing is available on campus in Sackett Hall, which provides full-service apartments with space for four students in each.

**Northwest Campus in Nome** — This campus serves not only the residents of Nome, but also the people in the 15 Eskimo villages surrounding Nome. Northwest offers a general program with courses from the first two years of a baccalaureate curriculum, as well as courses leading to the Associate of Arts and Associate of Applied Science degrees. Vocational and general interest courses are also taught.
Branch Campus Academic Calendars

Bristol Bay Campus

1991 Fall Semester
Registration .................................. Mon.-Fri., Aug. 26-Sept. 6
First day of instruction ......................... Mon., Sept. 9
Last day to drop classes ......................... Fri., Sept. 20
Last day to apply for fall graduation ............. Tue., Oct. 15
Last day to withdraw ............................ Fri., Nov. 8
Thanksgiving Holiday .......................... Thur.-Sun., Nov. 28-Dec. 1
Last day of instruction ......................... Fri., Dec. 20
Grades due to Admissions Manager from faculty .......... Mon.-Fri., Jan. 13-17
Commencement ................................ Sat., May 2
First day of instruction ......................... Fri., May 15
Grades due to Admissions Manager from faculty .......... Fri., May 22

1992 Spring Semester
Registration .................................. Mon.-Fri., Jan. 13-17
First day of instruction ......................... Mon., Jan. 20
Last day to drop classes ......................... Fri., Jan. 31
Last day to apply for spring graduation ............. Fri., Feb. 14
Last day to withdraw ............................ Fri., Mar. 20
Commencement ................................ Sat., May 2
First day of instruction ......................... Fri., May 15
Grades due to Admissions Manager from faculty .......... Fri., May 22

Chukchi Campus

1991 Fall Semester
Registration .................................. Mon.-Fri., Aug. 26-Sept. 6
First day of classes ............................ Mon., Sept. 9
Last day of instruction ......................... Fri., Dec. 20

1992 Spring Semester
Early registration for graduating students .......... Mon.-Fri., Dec. 2-13
Registration .................................. Mon.-Tue., Dec. 16-Jan. 14
First day of classes ............................ Mon., Jan. 20
Last day of classes ............................. Fri., May 1

Kuskokwim Campus

1991 Fall Semester
Dormitory opens ................................ Sat., Aug. 31
New student orientation ................. Sun.-Mon., Sept. 1-2
Three-week session begins ............. Tues., Sept. 3
Last day of three-week session .......... Thurs., Sept. 19
Registration for 12-week session .......... Thurs.-Sat., Sept. 19-21
First day of instruction for 12-week session .......... Mon., Sept. 23
Last day to add or drop classes ............... Fri., Sept. 27
Last day to apply for fall graduation ......... Tues., Oct. 15
Last day for student-initiated withdrawals ...... Fri., Nov. 15
Thanksgiving holidays ...................... Thurs.-Sun., Nov. 28-Dec. 1
Last day of instruction ......................... Thurs., Dec. 19
Final examinations ........................... Mon.-Thurs., Dec. 16-19
Grades due from faculty ........................ Mon., Dec. 23
1992 Spring Semester
Dormitory opens.............................................. Tues., Jan. 14
New student orientation .................................. Wed., Jan. 15
Registration for 15-week session.......................Thurs.-Sat., Jan. 16-18
First day of instruction .................................. Mon., Jan. 20
Last day to add or drop classes.........................Fri., Jan. 31
Last day to apply for spring graduation ...............Fri., Feb. 14
Spring recess..................................................Thurs.-Sun., Mar. 12-15
Last day for student-initiated withdrawals ..........Fri., Mar. 20
Last day of instruction ...................................Wed., Apr. 29
Final examinations .........................................Mon.-Wed., Apr. 27-29
Commencement ..............................................Fri., May 1
Grades due from faculty ..................................Mon., May 4

Northwest Campus
1991 Fall Semester
Registration..............................................Mon.-Fri., Aug. 26-Sept. 6; Tues.-Fri., Sept. 3-6
First day of classes .......................................Mon., Sept. 9
Last day to add or drop classes.........................Fri., Sept. 20
Last day for tuition refund .............................Fri., Sept. 27
Last day for materials refund ..........................Fri., Sept. 27
Last day to apply for fall graduation .................Tues., Oct. 15
Last day for student-initiated withdrawals .........Fri., Nov. 8
Last day of instruction ..................................Fri., Dec. 20
Grades due from faculty .................................Mon., Jan. 13

1992 Spring Semester
Registration..............................................Mon.-Fri., Jan. 6-10; Mon.-Fri., Jan. 13-17
First day of classes .......................................Mon., Jan. 20
Last day to add or drop classes.........................Fri., Jan. 31
Last day for tuition refund .............................Fri., Jan. 31
Last day for materials refund ..........................Fri., Feb. 7
Last day to apply for spring graduation ...............Fri., Feb. 14
Spring break ..................................................Fri., Mar. 13
Last day for student-initiated withdrawals .........Fri., Mar. 20
Last day of instruction ..................................Fri., May 1
Commencement ..............................................Thurs., May 7
Grades due from faculty ................................Fri., May 15

(Note: Dates are subject to change.)

Multi-campus profile
* Main campus, Fairbanks
* Bristol Bay Campus, Dillingham
* Chukchi Campus, Kotzebue
* Interior Campus, Fairbanks
* Kuskokwim Campus, Bethel
* Northwest Campus, Nome

Branch Campus Academic Calendars
Graduate students Lance Ahern and Deepak Sinha play chess on the table in front of Wood Center.

Students make their way to class as an early winter snow falls.
How to Enroll

Applying for Admission

When to Apply
If you’re a high school senior, you should apply for admission during the first semester of your senior year. If you’re a transfer student, you should apply six to nine months before the beginning of the semester in which you plan to enroll. You need to send your application by August 1 for the fall semester and December 1 for the spring semester. If you send your application after the deadlines, it will be processed as time permits.

If you’re an entering freshman in college, you must obtain test results. If you’re an entering freshman in another college, you must request official transcripts from each college or university you attended. The transcripts should be sent to the Office of Admissions and Records by the schools. TRANSCRIPTS WILL NOT BE ACCEPTED IF YOU SUBMIT THEM.

If you’re a transfer student, you should send your registration documents along with less than 18 hours of credit, which include four credits in mathematics, at least one laboratory course in biology, chemistry, or physics, and at least one credit in college preparatory mathematics. The units must include four credits in algebra I, II, geometry, trigonometry, elementary functions, precalculus or calculus, three in social sciences and three in natural or physical sciences. Two years of study in a non-English language are strongly recommended.

Admission Requirements

Freshman
To qualify for admission as a freshman, you must meet one of the following:

Associate Degree
For admission to associate degree programs, you must be at least 18 years old or have earned a high school diploma.

If you’re an associate degree or certificate student, and later wish to enter a baccalaureate degree program, you may be admitted after earning, with a “C” average, 14 credits at the 100 level or above, of which nine credits must satisfy general education requirements.

Baccalaureate Degree
A. For admission to a baccalaureate degree program, you must have graduated from high school with an overall grade point average (GPA) of 2.0 (C) or higher. Your admission to a specific baccalaureate degree program is based on a combination of your high school grade point average and your completion of specific high school courses.

In addition, you must complete, with a minimum grade point average of 2.5, a high school core curriculum of at least 16 academic units. The units must include four credits in English, three in college preparatory mathematics (selected from Algebra I, II, geometry, trigonometry, elementary functions, precalculus or calculus), three in social sciences and three in natural or physical sciences (including at least one laboratory course in biology, chemistry or physics). Two years of study in a non-English language are strongly recommended.

Test results from the ACT or SAT must be received before you can be admitted.

Conditional and Final Acceptance

If you’re a qualified applicant, a letter of acceptance will be mailed to you once the above items are received and processed. Your letter of acceptance will spell out any conditions under which you are being admitted.

If you’re a qualified applicant in your last year of high school, or attending another college, your acceptance will be conditional until official transcripts are received which show you have satisfactorily completed the work in progress and, if you’re a high school senior, that you have graduated.

Your acceptance to UAF is final only when all your credentials have been accepted by the Office of Admissions and Records.

Being accepted at UAF constitutes an agreement of mutual responsibility. You agree to abide by the rules and policies and to act in a responsible, mature manner. The university’s contribution is to provide an appropriate academic atmosphere.

Immunization Policy
If you’re a new student accepted for nine or more credits, you must submit the following:

1. A completed health inventory form to be submitted to the Center for Health and Counseling;
2. Negative tuberculin skin test or chest X-ray results;
3. Written proof from a medical authority of immunity to:
   a. Rubella
   b. Rubella
   c. Diphtheria and Tetanus
   d. Polio

Your registration may be withheld for your second semester until these items are submitted.
you may be provisionally accepted provided you make up deficiencies by earning at least a "C" grade in each of the appropriate developmental or university courses, and complete nine credits of general baccalaureate degree requirements with a grade of "C" in each course.

C. If you haven’t graduated from high school, haven’t attended a college or university and are at least 21 years old, but do not meet minimum entrance requirements as a freshman, you may be considered on a case-by-case basis for unrestricted admission as an "undeclared" student by completing either the ACT or SAT with sufficiently high scores.

Transfer Students

If you’re an applicant who has attended other accredited institutions, you are eligible for admission if you have a 2.0 GPA in your previous college work and an honorable dismissal from previous schools. If you’re applying to a technical or scientific program, you may need to present a higher grade average and proof that you’ve completed appropriate background courses before you will be admitted to the program. If you are transferring in with fewer than 30 semester hours of transferable credit, you must also have a high school GPA of 2.0 or higher and must complete the ACT or SAT before registering. If you have attended an unaccredited postsecondary institution, your admission status will be determined on an individual basis.

International Students

If you’re an international student or a recent immigrant to the United States, additional admission requirements apply to you:

A. English Language Proficiency Policy: In addition to meeting regular admission requirements, you must be able to read, write and speak English well enough to successfully complete your program.

TOEFL Test Requirements

1. If you’re from a country where English is not the native language, you must present a satisfactory score on the Test of English as a Foreign Language (TOEFL). You can’t use any other proof of English competency (such as English credits from other schools).

2. If you’re a permanent resident on an immigrant visa, a TOEFL score is required if all your formal education is from a country where English is not the primary language, or when the documents presented for admission don’t clearly indicate your proficiency in English.

3. You must present a TOEFL score of at least 550.

B. Other Requirements

1. When preparing the I-20 form that is necessary to obtain an F-1 (student) visa, the university must certify to the Immigration and Naturalization Service that you have been accepted for full-time enrollment and that you have funds to meet estimated expenses for one academic year. If you’re in the U.S. on an F-1 visa, you must maintain a full-time course load; you may not enroll as a part-time student (less than 12 credits per semester).

2. You must sign a statement that funds are available to pay all expenses while you attend UAF, as well as the amount needed for round trip transportation between your home and Alaska. The minimum cost for attending UAF for one school year is $8,000. This amount 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 cold weather clothing costs. Since the application for the F-1 visa requires affirmation that you don’t intend to live in the United States permanently, you aren’t eligible for resident tuition fees.

3. Your application should reach Admissions and Records by March 1 for the fall semester or October 1 for the spring semester. Your application must be completed and accepted by August 1 for the fall semester and December 1 for the spring semester in order to allow time for your I-20 form to be issued. You can’t reserve on-campus housing until your application for admission has been accepted. If you’re interested in single student housing, you should file your application materials at least eight months before you plan to enroll.

HIGH SCHOOL ENTRANCE CREDIT REQUIREMENTS FOR ALL BACHELOR’S DEGREE PROGRAMS:

<table>
<thead>
<tr>
<th>H.S. Core Credits:</th>
<th>English</th>
<th>Math</th>
<th>Social Science</th>
<th>Natural/Phys. Sci.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required for all freshmen (2.50 GPA in core-16 credit total)</td>
<td>4</td>
<td>3 in college preparatory mathematics</td>
<td>3</td>
<td>3 (Incl. 1 cr. lab sci. course in biology, chemistry or physics)</td>
</tr>
<tr>
<td>College of Liberal Arts:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Statistics</td>
<td>4</td>
<td>Algebra-2</td>
<td>3</td>
<td>Natural Sci.-2</td>
</tr>
<tr>
<td>Computer Science or Mathematics majors</td>
<td></td>
<td>Geometry-1</td>
<td>Physics or Chemistry-1</td>
<td></td>
</tr>
<tr>
<td>Physical Educ. majors</td>
<td>4</td>
<td>Algebra-2</td>
<td>2</td>
<td>Biology-1</td>
</tr>
<tr>
<td>All other majors</td>
<td></td>
<td>Elective-1-3</td>
<td>Physics or Chemistry-1</td>
<td>Elective-1</td>
</tr>
<tr>
<td>Liberal Arts</td>
<td>Same as entrance core</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Natural Sciences:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All majors</td>
<td>4</td>
<td>Algebra-2</td>
<td>3</td>
<td>Physics or Chemistry-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geometry-1</td>
<td>Biology or Elective-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trig.-½</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Rural Alaska:</td>
<td></td>
<td>Same as entrance core</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All majors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School of Agriculture and Land Resources Management:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Resources</td>
<td>3</td>
<td>Algebra-2</td>
<td>3</td>
<td>Physics or Chemistry-1</td>
</tr>
<tr>
<td>Mgt. majors</td>
<td>4</td>
<td>Geometry-1</td>
<td>Biology or Elective-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trig.-½</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School of Engineering:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All majors</td>
<td>4</td>
<td>Algebra-2</td>
<td>3</td>
<td>Chemistry-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geometry-1</td>
<td>Physics-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trig.-½</td>
<td>Elective-1</td>
<td></td>
</tr>
<tr>
<td>School of Fisheries and Ocean Sciences:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All majors</td>
<td>4</td>
<td>Algebra-2</td>
<td>3</td>
<td>Physics or Chemistry-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geometry-1</td>
<td>Biology and/or Elective-2</td>
<td></td>
</tr>
</tbody>
</table>
School of Management:
All majors* 4 Algebra-2 3 Physics or
Geometry-1 Chemistry-1
Trig-½ Nat. Sci.-2
*Two years Foreign Language highly recommended.

School of Mineral Engineering:
All majors 4 Algebra-2 3 Physics or
Geometry-1 Chemistry-1
Trig-½ Nat. Sci.-2

Non-Degree Students
If you wish to attend UAF, but not as a degree student, you must be a high school graduate, or at least 18 years old. As a "non-degree student," you are subject to the placement examination requirements for freshman courses. You must maintain a 2.0 GPA to remain in good standing. You won't be considered a degree candidate until you've met regular admission requirements and filed transcripts. As a non-degree student you aren't eligible for financial aid or preregistration.

High School Students
If you're a qualified high school student, you may enroll in one or two UAF courses while you're still in high school. To qualify, you must present written recommendations from your high school counselor or principal, the written approval of your parents, and an official transcript indicating a satisfactory GPA in your high school work. If you're a high school senior with a GPA of at least 2.5, you may register for two courses for a maximum of six credits. If your GPA is between 2.0 and 2.5, you may register for one course each semester. If you're a junior with a GPA of at least 2.75, you may register for one course each semester. If you're a qualified freshman or sophomore high school student, you may register for one course each semester with the approval of the Director of Admissions and Records.

Students with Bachelor's Degrees
If you hold a bachelor's degree but have not defined or declared your graduate program, you may enroll as a non-degree student if space permits. You're in this category if you are:
1. Planning to take "interest courses."
2. Strengthening your preparation in order to be admitted to graduate study.
3. A transient student expecting to be at UAF only briefly.
4. Awaiting action on applications for graduate status.

First Bachelor's Degree Programs - If you wish to complete a second bachelor's degree, you must apply for admission as an undergraduate transfer student.

Academic Bankruptcy for Returning Students
If you performed at an academic level which made you ineligible to continue your studies at UAF, and dropped out or were dismissed from school, academic bankruptcy can offer you a new undergraduate start.

When you want to resume your college work but find your previous UAF academic record an obstacle, you may apply for readmission on the basis that your prior academic record be disregarded. You begin your college study again with no credits attempted, no credits earned and no quality points reflected in subsequent grade point average calculations. You may use academic bankruptcy only once. You may request academic bankruptcy for records from present UAF units which were not part of UAF prior to fall 1987.

To declare academic bankruptcy, you must submit an Application for Academic Bankruptcy form and receive the approval of the dean of the college or school to which you are being admitted or readmitted. Before applying for admission on this basis, at least two years must have elapsed since the end of the last full-time semester you attended. Academic bankruptcy application forms are available at the Admissions and Records Office.

Your prior academic record remains a part of your overall academic record and appears on your transcript, but none of the credits you earned previously can be used in your new program. The only time these credits will be included, however, is in GPA computations for graduation with honors (See "Graduation with Honors"). You may be allowed advanced standing or a waiver of requirements just as any non-bankrupt student, but you won't be allowed credit-by-examination for courses lost in bankruptcy.

Course Placement

English and Mathematics
On the basis of test scores, if your background appears to be deficient in English and mathematics, you may be required to take remedial English and mathematics or both in addition to curriculum requirements. The basic English and mathematics courses are especially designed to help you achieve competency in the least amount of time.

Generally, you will be placed in ENGL 111 if both your ACT English and composite scores are 16 or above, if your enhanced ACT (EACT) English score is 18 and your composite score is 19, or if you have an SAT English score of 350 or above and a combined SAT score of 720 or above.

Mathematics course placement is usually based on a combination of your ACT mathematics score plus the number of semesters of high school mathematics you've completed. Generally, the following scores and semesters of high school mathematics give placement in the courses indicated:

<table>
<thead>
<tr>
<th>Number of Semesters of High School Math</th>
<th>ACT-EACT Math Score (SAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td></td>
</tr>
<tr>
<td>-ACT-EACT Math Score (SAT)</td>
<td></td>
</tr>
<tr>
<td>26 or higher (540 or higher)</td>
<td>with 1-8</td>
</tr>
<tr>
<td>19 to 24</td>
<td>MATH 107, 161</td>
</tr>
<tr>
<td>12 to 19</td>
<td>less than 6</td>
</tr>
<tr>
<td>9 to 11</td>
<td>MATH 107, 161</td>
</tr>
<tr>
<td>6 to 8</td>
<td>less than 7</td>
</tr>
<tr>
<td>3 to 5</td>
<td>MATH 107, 161</td>
</tr>
<tr>
<td>1 to 2</td>
<td>4-7</td>
</tr>
<tr>
<td></td>
<td>See Math Department</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with 4-7</td>
</tr>
<tr>
<td></td>
<td>MATH 107, 161</td>
</tr>
<tr>
<td></td>
<td>less than 10</td>
</tr>
<tr>
<td></td>
<td>DEV 070</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with 1-8</td>
</tr>
<tr>
<td></td>
<td>See Math Department</td>
</tr>
</tbody>
</table>

Foreign Language
To continue the study of a foreign language you began in high school, you must take a placement test. If you don't place at a level appropriate to the amount of your previous language study, you can enroll for credit in a course that is one semester below your level. Work more than one semester below the normal level will be considered remedial and will carry no credit.

Transfer of Credit
Credit accepted for transfer to UAF which has been earned at 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.

The following regulations apply to transfer of credit:
1. You’re only eligible for transfer of credit if you’re an undergraduate degree or certificate candidate.
2. The applicability of transfer credit to your major and/or minor requirements must be approved by your major and/or minor department. As a transfer student, you must fulfill the UAF graduation and residency requirements, including those required for a particular program.
3. Undergraduate credits earned at the 100-level or above with a grade of “C” or higher at institutions accredited by one of the six regional accrediting agencies, will be considered for transfer.
4. Transfer credit is not included in computing your UAF grade point average.

5. As an entering transfer student, your class standing is based on the number of credits UAF accepts of your previous college work.
6. Credits may be awarded for formal service schooling and military occupational specialties (MOS) as recommended in the “Guide to the Evaluation of Educational Experience,” published by the American Council on Education. A score of 60 on the MOS Skill Qualification Test is required. A maximum of 49 credits combined from these sources can be applied toward your associate or bachelor’s degree. Credit completed through the Community College of the Air Force or in Department of Defense courses are included in the category of military experience.
7. You may request special review for approval of transfer credit not meeting the requirements above by contacting the Office of Admissions and Records.

Undergraduate Admission Requirements in Brief

<table>
<thead>
<tr>
<th>Admission Category</th>
<th>Admission Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BACCALAUREATE</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Freshman*          | High school graduation and GPA of 2.0 (C)  
|                    | Completion of 16 credit core with 2.5 GPA |
| Transfer Student — Less than 30 semester hours of credit* | Same requirements as for freshman (above)  
|                    | 2.0 (C) GPA in previous college work |
| Transfer Student — More than 30 semester hours of credit | 2.0 (C) GPA in previous college work |
| **ASSOCIATE**      |                        |
| Freshman and Transfer* | High school graduation  
|                      | or at least 18 years old |
| Non-High School Graduate* | GED or at least 18 years old |
| Non-Degree Student  | High school graduation, GED  
|                      | or at least 18 years old |
| Auditor            | Same requirements as for appropriate category above (freshman, transfer, non-degree, etc.) |
| International Student | Same requirements as for appropriate category above (freshman, transfer, etc.)  
|                      | Acceptable TOEFL examination scores  
|                      | Acceptable financial statement |

*Before registering, all first-time degree and certificate students must complete the ACT or the SAT, or ASSET test for associate and certificate students, which are used for course placement purposes. If you plan to take a 100-level written communication or mathematics course, a placement test is required; it is recommended for all entering students.
Alternative Ways to Earn Credit

Advanced Placement Credit

Advanced placement credit is awarded based on national or departmental placement examinations. Methods and standards for awarding advanced placement credit are listed below:

Local Advanced Placement Credit

English — If you’re an incoming freshman with an English ACT score of 26 or higher, an English Enhanced ACT score of 30 or higher, or a verbal SAT score of 600 or higher, you may receive credit for ENGL 111X in one of two ways: 1) by enrolling in a 200 or 300 level literature course and completing it with a grade of “C” or better, or 2) waiting until you have sophomore standing (30 credits or more), and then completing ENGL 211 or 213 with a grade of “C” or better. You must submit an “Application for ENGL 111X Credit” form to the Office of Admissions and Records at the end of the semester in which you completed an advanced English course.

Foreign Language — If you have previous exposure to a language outside of college, and want to continue studying that language, you will need to take a placement test. After completing the course and earning a grade of “C” or higher, you will be given credits for that course and, in addition, for the two immediately preceding prerequisite courses, if any, unless you have received university credit for these already. A native speaker may not receive credit for 101 and 102 levels.

This policy doesn’t apply to special topic courses, individual study courses, literature or civilization courses.

Mathematics — Placement in mathematics courses is determined by ACT mathematics scores and the number of semesters of high school mathematics you completed. If you complete MATH 201, 202, 273 or 302 with a grade of “C” or better, you may also receive credit for any prerequisite calculus course.

College Board Advanced Placement

UAF grants advanced credit, with waiver of fees, for a score of three or higher in the College Board (CEEB) Advanced Placement Tests. Normally, you take these tests during your senior year in high school.

To receive CEEB Advanced Placement credit, you must request that an official report of your examination scores be sent to the Office of Admissions and Records. When you enroll, you will be awarded appropriate credit. You may receive credit for more than one Advanced Placement examination.

<table>
<thead>
<tr>
<th>Examination</th>
<th>UAF Course Equivalent Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Gov’t &amp; Politics</td>
<td>PS 101</td>
</tr>
<tr>
<td>American History</td>
<td>HIST 131/132</td>
</tr>
<tr>
<td>Art</td>
<td>ART 261/262</td>
</tr>
<tr>
<td>Art Studio (drawing)</td>
<td>ART electives</td>
</tr>
<tr>
<td>Art Studio (gen portfolio)</td>
<td>ART electives</td>
</tr>
<tr>
<td>Biology</td>
<td>BIOL 105/106</td>
</tr>
<tr>
<td>Chemistry</td>
<td>CHEM 105/106</td>
</tr>
<tr>
<td>Classics: Virgil (Level 3)</td>
<td>LANG electives</td>
</tr>
<tr>
<td>Classics: Latin Lyric</td>
<td>LANG electives</td>
</tr>
<tr>
<td>Comparative Gov’t &amp; Politics</td>
<td>PS 201</td>
</tr>
<tr>
<td>Computer Science A</td>
<td>CS 201</td>
</tr>
<tr>
<td>Computer Science AB</td>
<td>CS 201/202</td>
</tr>
<tr>
<td>Economics - Micro</td>
<td>ECON 101/102</td>
</tr>
<tr>
<td>Economics - Macro</td>
<td>ECON 201/202</td>
</tr>
<tr>
<td>English Lit &amp; Comp</td>
<td>ENGL 101/102</td>
</tr>
<tr>
<td>English Lang &amp; Comp</td>
<td>ENGL 111/112</td>
</tr>
<tr>
<td>European History</td>
<td>HIST 105/106</td>
</tr>
<tr>
<td>French Language</td>
<td>FREN 101/102</td>
</tr>
<tr>
<td>French Literature</td>
<td>FREN electives (200 level)</td>
</tr>
<tr>
<td>German Language</td>
<td>GER 101/102</td>
</tr>
<tr>
<td>German Literature</td>
<td>GER electives (200 level)</td>
</tr>
<tr>
<td>Math: Calculus AB</td>
<td>MATH 200</td>
</tr>
<tr>
<td>Math: Calculus BC</td>
<td>MATH 200/201</td>
</tr>
<tr>
<td>Music Listening &amp; Literature</td>
<td>MUS 123/124/125/133/134</td>
</tr>
<tr>
<td>Music Theory</td>
<td>MUS electives</td>
</tr>
<tr>
<td>Physics B</td>
<td>PHYS 105/106</td>
</tr>
</tbody>
</table>

Credit by Examination

There are several ways that you can earn college credit by receiving a passing score on an exam. For any of the credit by exam options, grades are not computed in the GPA. Credit by examination is not considered UAF residence credit, and is not considered as part of the semester course load for full-time classification.

You will only be awarded credit by examination if you’re currently enrolled, or if you were previously enrolled at UAF as a degree student.

The credit by examination options are briefly outlined below. More information can be obtained from the UAF Testing Services Office.

A. CLEP (College Level Examination Program)
CLEP is a national testing program that awards college credit for some introductory courses. The exams cost $36 each, and are administered by appointment. To register for a CLEP exam or to receive more information, contact Testing Services.

The following criteria apply to CLEP General Exams:

1. If you’ve earned as many as six semester credits in an area covered by a CLEP General Exam, no credit will be awarded for successfully completing that exam.
2. UAF currently accepts credit for all five CLEP General Exams listed below.

   English Composition w/Essay — Three ENGL 111 credits are granted for a 500 score.
   Humanities — Six humanities elective credits are granted for a 500 score.
   Mathematics — Three mathematics elective credits are granted for a 500 score.
   Natural Sciences — Six natural science elective credits are granted for a 500 score.
   Social Sciences/History — Six social science elective credits are granted for a 500 score.

The following criteria apply to CLEP Subject Exams:

1. You may not duplicate a course for which you’ve already been given credit, or for which you’re currently enrolled.
2. If you’ve audited a course, you can’t take the CLEP Subject Exam for that course for one year.
3. The minimum passing scores of approved CLEP Subject Exams is 50.

B. DANTES-DSST (Standardized Subject Tests)
DSST is a national testing program which offers exams in traditional academic, vocational/technical and business subject areas. Credit is transferred for successfully completing DANTES tests as recommended by the American Council of Education. These tests are scheduled individually through the Testing Services Office. The cost is $40 per test, and results are available in 10 days to two weeks. Acceptance of the DANTES exam for a specific catalog

Test Name                  | UAF Course
----------------------------|-------------------
General Biology             | BIOL 101-106      |
Educational Psychology      | ECON 201          |
Introductory               | ECON 202          |
Microeconomics             | ECON 202          |
Western Civilization I      | HIST 101          |
Western Civilization II     | HIST 102          |
American History I          | HIST 101          |
American History II         | HIST 102          |
General Psychology          | PSY 101           |
Human Growth & Development | PSY 240           |
course or as a major/minor requirement is subject to departmental approval.

Local Credit by Exam Program
You can be awarded credit through the local credit by exam program if you’re currently enrolled. Subject to departmental approval, most courses are available for credit by exam, except those with numbers ending -90 through -99 (193, 202, 497, etc.). A course challenged for credit can’t duplicate a course for which you’ve already been granted credit, or for which you are currently enrolled. If you’ve audited a class, you can’t request credit by examination for that class until one year has passed since the end of the semester in which you audited the course.

As part of the application process, you and your instructor will agree on the topics to be covered, the type of exam, the date of the exam and the grading method. You must complete the examination within 90 days of applying. If you miss this deadline, you’ll have to reapply and pay an additional fee.

The nonrefundable fee is $15 per credit hour. Contact the Testing Services Office to obtain credit by examination forms or for more information on challenging a course.

Correspondence Study
The Independent Learning (Correspondence) Program, administered by the Center for Distance Education and Independent Learning, offers an alternative for people who seek a college education but cannot attend traditional classes. The unique advantage of correspondence study is its flexibility. You select your own hours of study and work at your own pace in surroundings you choose. Correspondence study offers you the freedom to structure a personal academic program and continue educational progress even when personal circumstances make it impossible to attend scheduled classes.

For UAF students, correspondence study courses count as residence credit. When you enroll in a correspondence course during the regular semester enrollment period and complete the course during the same semester, the course may be used in determining full-time/part-time status, consolidated tuition, and eligibility for financial aid and scholastic action. The grade will average in the semester and cumulative grade point averages. When you enroll in a correspondence course at other times of the year, the credit and grade will not impact the credit load or semester grade point average for any other UAF semester enrollments.

An Independent Learning Program catalog detailing policies regarding enrollment, transfer, withdrawal, extension, reinstatement, fees, materials and course descriptions is available from the Center for Distance Education and Independent Learning, 130 Red Building, (907) 474-5353; FAX (907) 474-5402; BITNET:SYCDE@ALASKA.

Credit for Prior Learning
In acknowledging that individuals learn a great deal outside the walls of educational institutions, some UAF departments participate in a program where up to 45 credits for prior learning may be granted to you if you’re an undergraduate degree or certificate student. For the Associate of Applied Science degree and the Bachelor of Technology degree, up to 60 credits may be awarded based on federal, state or professional certifications or licenses, if applicable to your degree program. Credentials are reviewed by faculty from participating departments who make recommendations for awarding prior learning credit for specific courses that will apply toward associate or baccalaureate degree requirements. Credit received for prior learning doesn’t impact your GPA and is not considered as residence credit. For further information concerning credit for prior learning, contact the Advising Center at the Fairbanks campus.

Tanya Braun calls a friend from the telephone on the third floor of Wickersham Hall.
How to Register

Registration
You must register and pay your fees to attend classes and earn credit. Registration is held at the beginning of each semester or dates published in the academic calendar (see the inside front cover). For special programs, short courses, seminars and other classes that aren't part of the regular academic calendar, registration is held as needed.

Placement Tests
Results from American College Testing Program (ACT) or the Scholastic Aptitude Test (SAT) tests, or, for associate degree or certificate student, the ASSET test, are required if you're a first-time degree or certificate student, a transfer student with less than 30 acceptable credits, or planning to take 100-level written communication or mathematics courses. A placement test is recommended for all first-time students. The test results must be on file with the Office of Admissions and Records before you can register. Contact the UAF Testing Office for further information.

To determine the best options, alternatives and sequences of classes to take, you should discuss your course selections early with your advisor (all degree and certificate students are required to have an advisor). Your advisor's signature is needed to enter the registration process.

Non-degree students may also see an advisor, and it is recommended for those taking nine or more credits in a semester, or for those who have accumulated 30 or more UAF credits.

Registration Drop Policy
You're expected to begin attending classes on the first day of instruction. In order to identify potentially available spaces in courses, departments may require that you attend the first class session or notify the department in advance that you can't attend the first class. If you miss the first class without notifying the department, you may be dropped from the course and the space assigned to a student on the waiting list.

At the Fairbanks campus, the class schedule provides information on which courses use the registration drop policy. After the first class session, lists of the names of the students who are to be dropped from classes are forwarded by the department head to the Office of Admissions and Records so the course can be removed from the students' enrollment files.

Because of the high demand for these courses, if you don't attend the first two meetings of a composition course (ENGL 111x, 211x, 213x, 313 or 414), or the first two meetings of a basic speech course (SPC 131x or 141x), you will be dropped from the class even if you preregistered.

If space becomes available in a class from which you have been dropped by the department, you will have to follow the drop/add procedure to add the course.

Credit-No-Credit Option
The credit-no-credit option encourages you to explore areas of interest not necessarily related to your major.

You may elect the credit-no-credit option for one designated elective each semester during the first two weeks of the semester. The instructor doesn't 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" level or higher; if your performance falls below that level, the course will not be recorded on your academic record. In either case, the course won't be included in any GPA calculations and, if credit is granted, a grade of "CR" will be entered for the course.

Elective courses taken to complete general university requirements or to meet the minimum credit requirements for the degree may be taken under this option. Major or minor requirements and those specified as foundation courses aren't allowed under this option.

Auditing
If you want to enroll in one or more courses for informational purposes only, you may register as an auditor if there is space 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. No grades are given, no credit is awarded and audited courses don't apply toward degree requirements, nor will they transfer to other institutions.

If you want to audit a course, you should indicate that at registration on your registration form.

If you want to change from audit to credit, you must request that before the deadline to add a course; changing from credit to audit must be done before the deadline for student-initiated withdrawals.

Instructors set the requirements under which an "AU" is to be recorded, and submit "AU" for auditors who satisfy the requirements. Auditors not receiving a grade of "AU" receive a "W."

If you've audited a class, you can't request local credit by examination for that class for one year.

Adding, Dropping and Withdrawing from Courses
Add/Drop — You may add courses to your schedule until the end of the published late registration period. You may drop a course during the first two weeks of the semester by following the drop/add procedure. Dropped courses don't appear on your academic record. Your academic adviser must sign the appropriate form for either an add or drop. Information about the add/drop procedure and forms may be obtained from the Office of Admissions and Records.

Withdrawing from an Individual Course — If you want to withdraw from an individual course after the first two weeks of the semester, you will need to follow the add/drop procedure. The last day you can withdraw from classes is published in the official academic calendar for each semester or session and is based on the date when 60 percent of the semester or session has passed. Courses from which you withdraw will appear on your academic record with "W" grades but will have no effect on your GPA.

Withdrawing from All of Your Classes — If you want to withdraw from all of your classes, you will need to obtain a total withdrawal form from the Office of Student Affairs. After 60 percent of the semester or session has passed, a total withdrawal can only be initiated by the dean of the college/school in which your major is located or, if you're undeclared, by the Vice Chancellor for Student Affairs.

Instructor signatures aren't required for any drop or withdrawal. Your instructors will be notified of your drop or withdrawal by the Office of Admission and Records. Advisors'
signatures aren’t required when non-degree students add classes or drop or withdraw from classes. When you drop or withdraw from a class or classes, your signature is required.

Registration Changes

<table>
<thead>
<tr>
<th>ACTION</th>
<th>BEGINS**</th>
<th>ENDS</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Add a Class or to Register Late</td>
<td>First day of instruction for the semester</td>
<td>Fifth day of instruction for the semester</td>
<td>Adviser’s signature required for student in degree program</td>
</tr>
<tr>
<td>To Drop a Class (Course does not appear on transcript)</td>
<td>First day of instruction for the semester</td>
<td>10th day of instruction for the semester</td>
<td>Adviser’s signature required for student in degree program</td>
</tr>
<tr>
<td>Withdrawal from a Class (Class appears on transcript with a “W” grade)</td>
<td>11th day of instruction for the semester</td>
<td>When 60 percent of the semester has passed</td>
<td>Adviser’s signature required for student in degree program</td>
</tr>
<tr>
<td>Total Withdrawal from the University (student initiated)</td>
<td>First day of instruction for the semester</td>
<td>When 60 percent of the semester has passed</td>
<td>Adviser’s signature required for student in degree program</td>
</tr>
<tr>
<td>Total Withdrawal from the University (dean initiated)</td>
<td>When 60 percent of the semester has passed</td>
<td>Last day of instruction for the semester</td>
<td>Must be initiated by the dean of the college or school in which the student is majoring or by the Vice Chancellor for Student Affairs for undeclared majors or non-degree students</td>
</tr>
</tbody>
</table>

Credit-No-Credit Option | First day of instruction for the semester  | 10th day of instruction for the semester | Only free electives may be taken under this option                    |

* Add/drop forms, total withdrawal forms and credit-no-credit forms must be submitted to the Office of Admissions and Records by the appropriate deadlines.

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

The appeals route for students or faculty regarding the dean’s decision concerning a request for a dean-initiated withdrawal is the Chancellor’s Office, and then the Fairbanks Grievance Council.
Academic Honors

To be eligible for academic honors at the end of a semester, you must be a full-time undergraduate degree or certificate student who has completed at least 12 UAF credits that are graded with the letter grades A, B, C, 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. The academic honors are recorded on your permanent record.

Chancellor’s List — You will make the Chancellor’s List with a semester GPA of 4.0
Dean’s List — A GPA of 3.5 or higher earns you a place on the Dean’s List.

Academic Standards

UAF’s scholastic standards are designed so you can take action before your academic record deteriorates to the point that readmission to UAF or to another college or university becomes a problem. In all cases involving poor scholarship, you’re encouraged to consult with your adviser, instructor or dean.

If you’re an undergraduate or certificate student, or a non-degree student enrolled in more than nine credits, and you fail to earn a GPA of 2.0, you will be subject to scholastic action at the end of the semester. Depending on your circumstances, scholastic action may result in your being placed on probation, continued on probation or disqualified from the university.

Probation — If you’re an undergraduate, certificate or non-degree student taking more than nine credits, you will be put on academic probation if your grade point average falls below 2.0. If you’ve previously been on probation and your semester and/or cumulative GPA is less than 2.0, you may be continued on probation if circumstances warrant. Your probation determination, which is made by the dean of the college/school in which you’re majoring, may include conditions and/or credit limitations which you’re expected to fulfill during your next enrollment at UAF. As a probation student, you may be referred for developmental advising/education and/or to a counseling center. In order to be removed from probation, your cumulative and semester GPAs must be at least 2.0.

Academic Disqualification — If your cumulative academic record indicates poor scholarship, the dean of the college/school in which you’re majoring may recommend that you be disqualified from degree status. As a disqualified student, you may continue your enrollment at UAF only as a non-degree student, limited to enrolling in nine credits per semester, until reinstated into your program. You must apply for readmission when you wish to be restored to degree seeking status.

Good Standing — You are in good standing if you are an undergraduate student and your cumulative GPA and most recent semester GPA are 2.0 or better.

Attendance

You are expected to regularly attend classes; unexcused absences may result in a failing grade. You are responsible for conferring with your instructor concerning absences and the possibility of arranging to make up missed work.

If you choose to be absent from class to participate in university-sponsored or other activities, you may be permitted to make up any work you have missed, but you must make arrangements with your instructor before the absence. You and your instructor should make a good faith effort to assure that you are not unduly penalized for each absence. Such activities shouldn’t be scheduled so that they conflict with the finals schedule.

Change of Grade Policy

A grade, other than an incomplete or deferred, submitted by your instructor after a course is completed, is assumed to be your final grade and it becomes part of your permanent academic record. Your grade won’t be changed unless your instructor made a legitimate error in calculating the grade; a grade change must be approved by the instructor’s unit head and dean. Grading errors must be corrected within 30 days after the beginning of the next regular semester.

Class Standing

Class standing is determined based on the total credits you’ve earned. Classifications are:

- Freshman ........................................... 0-29 credits
- Sophomore ........................................... 30-59 credits
- Junior .............................................. 60-89 credits
- Senior ............................................... 90 credits

Transfer students are given class standing based on the number of transfer credits accepted by UAF. Non-degree students are registered without class standing. Graduate students are given the class standing of “graduate” only after being officially admitted to master’s or doctoral programs.

Course Classifications

Courses that may be used to satisfy general degree requirements (e.g., Social Science Electives, Humanities Electives, etc.) are identified in the course description section of the catalog by the following designators:

- h - Humanities
- m - Mathematics
- n - Natural Science
- s - Social Science

For example, you may use HIST 341, History of Alaska, (3+0) s. to satisfy the “social science elective” requirement. Special topics courses are not given course classifications.

The Baccalaureate Core

Courses that may be used to satisfy general baccalaureate core requirements have course numbers ending with “X.” For example, English 111X, Speech Communication 141X and other such courses meet specific core requirements. See the requirements for the baccalaureate core for a listing of other specific courses.
Courses meeting the upper division writing intensive and oral communication intensive requirements for the baccalaureate core are identified in the course description with the following designators:

- OR - oral communication intensive course
- WR - writing intensive course

Note: Courses designated as meeting "WR" or "OR" requirements for the baccalaureate core may not meet written or oral communication requirements for degrees in effect prior to the fall of 1991.

Full-Time Status/Study Load

If you’re an undergraduate student registered for 12 or more semester credits, you are classified as a full-time student. In order 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 19 credits or more, you need a 3.0 cumulative grade point average, and an overload approval by your adviser, department head and dean.

Credits carried at any UAF unit are considered in determining study load hours and full-time or part-time classification. Courses that are audited or taken for credit by examination are not included in the study load computation. Only semester-based correspondence study courses count in the study load.

Grade Point Average (GPA) Computation/Grading System

To compute your GPA, the number of UAF credits you’ve attempted is divided into the number of grade points you’ve earned. To figure the number of grade points earned, the credits attempted for each course are multiplied by a grade point factor based on the grades awarded. Credits attempted where grades of AU (audit), CR (credit), DF (deferred), NB (No Basis), ENR (enrolled), I (incomplete), P (pass), S (satisfactory) or W (withdrawn) have been awarded are not included in the GPA computation. In addition, noncredit courses, transfer credits and credits for credit by examination do not affect the GPA calculations. Undergraduate work is not included in the GPA for graduate students.

Once you complete your bachelor’s degree, your GPA in future work is calculated only on the credits and grades earned since your degree was awarded. An exception is made if you’re officially admitted to a second bachelor’s degree program.

All grades (original and retakes) for a course completed 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.

All course grades are letter grades unless otherwise specified in the course schedule. The method of grading (letter or pass/fail) is an integral part of the course structure and is included in the course description. It is the same for all students taking the course. Instructors may use pluses and/or minuses in grading; the symbols are advisory only and carry no numeric weight in computing the grade point average. If used, the pluses and minuses appear on grade reports and official transcripts. Instructors are expected to state their grading policies in writing at the beginning of each course.

Grades appearing on academic records are as follows with grade point factors in parenthesis:

A (including +/–)

An honor grade, indicates originality and independent work, a thorough mastery of the subject, and the satisfactory completion of more work than is regularly required (four grade points per credit).

B (including +/–)

Indicates outstanding ability above the average level of performance (three grade points per credit).

C (including +/–)

Indicates a satisfactory or average level of performance (two grade points per credit).

D (including +/–)

Indicates failure (no grade points). All “D” grades, including those earned in pass/fail courses, are included in the GPA calculation.

P Pass — The grade “pass” indicates satisfactory completion of course requirements at either the undergraduate or graduate level. A “pass” grade does not affect your grade point average but credits earned with “pass” grades may meet degree requirements and may be used as a measure of satisfactory progress. Satisfactory performance is the equivalent of a grade of “C” or better in undergraduate course work and “B” or better in graduate courses. The entire class must be graded pass/fail and the grading system is noted in the class schedule.

Cr Indicates credit was given under the credit-no-credit option.

DF Deferred — Indicates that the course requirements cannot be completed by the end of the semester, that credit may be withheld without penalty until the course requirements are met within an approved time. This designation will be used for courses such as those special projects, etc., that require more than one semester to complete.

AU Audit — A registration status indicating that you’ve enrolled for informational instruction only. No academic credit is granted. You may be given a “W” if you don’t attend a course you are auditing. See “Auditing.”

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

I Incomplete — A temporary grade used to indicate that you’ve satisfactorily completed (C or better) the majority of the work in a course, but for personal or institutional reasons beyond your control, haven’t been able to complete the course during the regular semester.

Normally, an incomplete is assigned when you’ve been in class until at least the last three weeks of the semester or session. Negligence or indifference aren’t acceptable reasons for an “I” grade. The deferred grade (DF) may be used for those cases when you’re unable to complete a course due to institutional reasons, such as a breakdown of laboratory equipment.

When the “I” grade is given, the instructor includes a statement of the work required of you to complete the course.

You must make up an incomplete within one year or it will automatically be changed to an “F” grade. The “I” grade is not computed in your 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.” Seniors cannot graduate with an "I" grade in either a UAF or major course requirement. To determine a senior’s GPA at graduation, an "I" grade will be computed as a failing grade.

NB No Basis — Instructors may award a No Basis (NB) 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 (I). It can’t be removed by later completing outstanding work.

Honor Code

As a UAF student, you’re subject to the Honor Code. The university assumes that the integrity of each student and of the student body as a whole will be upheld. Honesty is a primary responsibility of you and every other UAF student. It is your responsibility to help maintain the integrity of the student community. UAF’s Honor Code is as follows:
1. Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. 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. A student will attribute the source of information not original with himself or herself (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.

Violations of the Honor Code will result in a failing grade for the assignment and, ordinarily, for the course in which the violation occurred. Moreover, violations of the Honor Code may result in suspension or expulsion.

Instructors can either deal with suspected violations of the Honor Code themselves or refer such matters to the University Disciplinary and Honor Code Committee (UDHCC). If the instructor believes that a student should be suspended or expelled from the university for an Honor Code violation, the instructor must request a hearing before the UDHCC. The UDHCC shall decide if the Honor Code has been violated. If it has not been violated, the instructor will evaluate the assignment according to his or her normal procedures. If it has been violated, the instructor will determine how this violation affects the student’s grade for the course; the UDHCC will recommend to the Vice Chancellor for Student Affairs whether the student should be dismissed from UAF. The UDHCC operates under procedures outlined in the “A” Book.

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. You should become familiar with campus policies and regulations as published in the student handbook, the “A” Book, which is available at the Student Activities Office in Wood Center.

Information Release

Access to Records

Under the Family Educational Rights and Privacy Act of 1974, you are entitled, as a UAF student, to review your records. Except for directory information, no personally identifiable information is disclosed to agencies outside UAF without the written permission of the student. Records are made available for legitimate UAF professional use on a need-to-know basis.

Directory Information

Directory information is disclosed to the public on a routine basis unless you request, in writing, to the Director of Admissions and Records that such information not be released. Forms to request that directory information not be released are available in the Office of Admissions and Records. You must complete this form each semester. No directory information is released during the first five working days of each semester. After that, information will be released when appropriate, unless you return the form to Admissions and Records.

The following is considered directory information:

1. Name
2. Address, telephone
3. Home address (permanent)
4. Weight and height of students on athletic teams
5. Date of birth
6. Dates of attendance and current class standing
7. Major field(s) of study
8. Degrees and awards received, including dates
9. Participation in officially recognized activities

Majors

You may declare a major when you are admitted as an undergraduate student to UAF. If you do not follow a curriculum leading to a specific degree, you will be enrolled with an “undeclared” major. If you are interested in a particular school or college, but have not selected a major, you will be enrolled as a non-major within that division. Non-degree students aren’t eligible to declare a major or to be assigned class standing.

You may change majors only at the beginning of a semester. Change of department and/or major forms, available from Admissions and Records, must be completed and you need to have the written consent of the department heads concerned.

If you’re an associate degree or certificate student wishing to declare a baccalaureate degree major, you must complete the admission process for bachelor’s degree programs. (See “Admission Requirements.”)

Petitions

Deviations from academic requirements and regulations for undergraduate students must be approved by academic petition. Petition forms, which require the signatures of your advisor, department head and dean, are available from the Office of Admissions and Records.

Petitions to waive general university or degree requirements must be approved by the Vice Chancellor for Academic Affairs, but you should first submit them to the Office of Admissions and Records.

Reserving Courses for Graduate Programs

If you’re a senior with only a few remaining requirements for your bachelor’s degree, you may take courses at the upper division or graduate level if space is available, and have them reserved for an advanced degree. To do this, you must be in your final year of an undergraduate program and must submit a written petition during the first four weeks of the semester identifying which courses being taken that semester are to be reserved for graduate study and are not to be counted toward your bachelor’s degree. (Reserving these courses, however, does not assure that they will be accepted by a graduate advisory committee as part of your eventual graduate program.)

Students’ Rights and Responsibilities

The university prescribes to principles of due process and fair hearings as specified in the “Joint Statement on Rights and Freedoms of Students.” You are encouraged to familiarize yourself with this document which can be found in the Office of Student Affairs.

Most students find it relatively easy to adjust to the privileges and responsibilities of university citizenship. For those who find this more difficult, the university attempts to provide needed counsel to help you gain insight and confidence in adjusting to your new environment. In some cases, if you are unable or unwilling to assume your social responsibilities as a citizen in the university community, the institution may terminate your enrollment, or take whatever action is deemed necessary and appropriate.
# General University Requirements for Undergraduate Degrees

<table>
<thead>
<tr>
<th>REQUIREMENTS</th>
<th>ASSOCIATE DEGREE</th>
<th>BACHELOR'S DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Number of Credits Required</td>
<td>60 credits</td>
<td>120 credits</td>
</tr>
<tr>
<td>Credits that Must be Earned at UAF (residence credit)</td>
<td>15 of the last 30 credits</td>
<td>30 of the last 36 credits</td>
</tr>
<tr>
<td>Upper Division Credit (Courses with numbers between 300 and 499)</td>
<td>39 credits total (some degrees require more); of the 39 credits, 24 must be earned at UAF</td>
<td></td>
</tr>
<tr>
<td>Additional Credit that Must be Earned at UAF by Transfer Students</td>
<td>12 credits in the major; 3 credits in the minor</td>
<td></td>
</tr>
<tr>
<td>Grade Point Average Required</td>
<td>2.0 cumulative and in major</td>
<td>2.0 cumulative and in major and minor</td>
</tr>
<tr>
<td>Minimum Grades Required for Major</td>
<td>No grade lower than “C” in courses required for major</td>
<td>No grade lower than “C” in courses required for major</td>
</tr>
<tr>
<td>Correspondence Study Courses</td>
<td>Maximum of 15 credits accepted for degree</td>
<td>Maximum of 32 credits accepted for degree</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 - 5 year limit on catalog year</td>
<td>May use any catalog in effect when enrolled as a degree-seeking student, regardless of major - 7 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 major must be met</td>
<td>24 credits beyond the first bachelor's degree and all requirements for the second degree must be met</td>
</tr>
</tbody>
</table>
How to Earn a Degree

Requirements

To earn a UAF degree, you must satisfy three 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 Degrees and Programs section.

General University Requirements

You must earn at least 60 semester hours for an associate degree, and 120 semester hours for a bachelor's degree, including transfer credits, to earn a UAF degree. You must earn at least 39 upper division credits for bachelor's degrees.

At least 15 of your final 30 semester hours applicable to any associate degree must be earned at UAF. If you're a bachelor's degree student, you must earn at least 24 upper-division credits and at least 30 of the last 36 credits for the degree at UAF. For transfer students, you need to earn at UAF at least 12 semester credits in your major and at least three semester credits in your minor for the baccalaureate degree. Credit by examination doesn't qualify for residence credit.

You must earn a minimum GPA of 2.0 in all work as well as in your major and minor fields. In addition, you must earn a minimum grade of “C” in courses required for your major.

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 completing all requirements for the major. As long as you've completed the additional 12-hour requirement, you may be awarded two degrees in one semester.

If you're a UAF graduate wanting to earn a second bachelor's degree, you must complete at least 24 hours of credit beyond the first bachelor's degree. You must meet all general university requirements, degree requirements, and major requirements for both degrees.

For students who hold bachelor's degrees from other colleges or universities, you must apply for admission as a transfer student. You have to meet all general university requirements (including residency requirements), degree requirements and major requirements.

Certifying that you have met all major and minor requirements is the responsibility of your department faculty, who notify the director of Admissions and Records.

No more than 15 semester hours of correspondence study work are accepted toward an associate degree; 32 semester hours are accepted toward a bachelor's degree. 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 of not having the courses accepted.

Since ENGL 211X and 213X 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 211X without first fulfilling the ENGL 111X requirement. (See "Local Advanced Placement Credit - English.")

What catalog are you under?

If you are admitted to or transferring between an associate or baccalaureate degree program at UAF, regardless of your major, you may complete degree requirements that are in effect in any one of the academic years in which you are enrolled as a degree student. Only degree requirements in effect within seven academic years prior to your graduation date for a baccalaureate degree or five years for a certificate or associate degree may be used.

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 non-degree student registration process, you aren't considered enrolled as a degree student during that time.

Residence Credit

Residence credit is UAF credit that you earn in formal classroom instruction, correspondence study, distance delivered courses, individual study or research through any unit of UAF. Transfer credit, advanced placement credit, credit for prior learning, formal service school credit, 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.

Graduation

Responsibility — You are responsible for meeting all requirements for graduation.

Application for Graduation — You need to formally apply for graduation. Applications for graduation must be filed with the Office of Admissions and Records during the semester you plan to graduate, but not later than the deadline which appears in the academic calendar.

Applications for graduation filed after the deadline are processed for graduation the following semester.

Diplomas and Commencement — UAF issues diplomas to graduates three times each year: in September following the summer session, in January at the close of the fall semester, and in May at the end of the spring semester.

All students who complete degree requirements during the academic year are invited to participate in the annual commencement ceremony which follows the spring semester.

Graduation with Honors — In order to graduate with honors, you must earn a cumulative grade point average of 3.5 or higher in all college work attempted at UAF. For transfer students, you must complete 48 semester hours of credit at UAF for a baccalaureate degree or 24 semester hours of credit at UAF for an associate degree. Your cumulative grade point average in all college work attempted at all other institutions attended, combined with the UAF cumulative grade point average, must not be less than 3.5.

If that overall cumulative grade point average is 3.5 or higher, you will be graduated cum laude; 3.8 or higher, magna cum laude; 4.0, summa cum laude, provided you meet the requirements stated above.

Degree Requirements

Certificate Programs

Certificate programs vary in length; however, you can usually complete them in one year.

Requirements

To enroll in a certificate program, and before receiving a certificate, you must formally be admitted. To earn a certificate, you may enroll in any course for which you are eligible.
To earn a certificate, you must earn at least 30 credits, including transfer credit. Fifteen semester hours must be residence credits. You must have a grade point average of 2.0 in all work, as well as in your major.

Specialty requirements and approved electives...........................30

MAJORS AVAILABLE FOR CERTIFICATE PROGRAMS: Airframe and Powerplant, Applied Mining Technology, Community Health Aide, Culinary Arts, Diesel/Heavy Equipment Mechanics, Drafting Technology, Early Childhood Development, Fire Science, Office Professions.

ASSOCIATE DEGREES

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 baccalaureate program. You may earn only one A.A. degree.

Requirements

All credits for the A.A. degree must be at the 100-level or above and 20 credits at the 200-level or above, and be distributed as follows:

Communication (9 credits) Credits
ENGL 111X—Methods of Written Communication ..........................3
ENGL 211X—Intermediate Exposition with Modes of Literature OR
*ENGL 212—Business, Grant and Report Writing OR
ENGL 213X—Intermediate Exposition ..............................................3
SPC 131X—Fundamentals or Oral Communication: Group Context OR

Mathematics or natural science (10 credits)
MATH 131X—Concepts and Contemporary Applications of Mathematics .................................................................3
or MATH 200, 201, 202, 262, 272 or any math course having one of these as a prerequisite.

One natural science course, with lab, selected from the baccalaureate core ...............................................................3

Mathematics or natural science elective ......................................3

Humanities and social science (18 credits)
ANTH/SOC 100X—Individual, Society and Culture ..........................3
ECON/PS 100X—Political Economy ................................................3
HIST 100X—Modern World History ................................................3
ART/MUS/THR 200X—Aesthetic Appreciation: Interrelationships of Art, Drama and Music ..................................................3
ENGL/FL 200X—World Literatures ...................................................3
Humanities or social science elective ..............................................3

(Two semester length courses in a single non-English language taken at the university level may substitute for one of the required courses above and the three-credit humanities or social science elective.)

Library and information skills (0-1 credit)
Successful completion of library skills competency test or LS 100X or LS 101X .................................................................0-1

(It is strongly recommended that this requirement be completed before enrolling in the 200-level English course requirement or that it be completed concurrently with enrollment in the 200-level English core requirement.)

General electives (22-23 credits)

Any combination of courses. (Students planning to go on to the baccalaureate degree are advised to select courses meeting remaining core requirements and courses designated within baccalaureate majors and minors.) ....................................................22-23

Electives to total .................................................................60

*ENGL 212 doesn’t fulfill the second half of the written communication requirement for the baccalaureate degree.

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 training.

Requirements

All credits for the A.A.S. degree must be at the 100-level or above and be distributed as follows:

Communication (9 credits) Credits
ENGL 111X—Methods of Written Communication ..........................3
ENGL 211X—Intermediate Exposition with Modes of Literature OR
*ENGL 212—Business, Grant and Report Writing OR
ENGL 213X—Intermediate Exposition .............................................3
SPC 131X—Fundamentals or Oral Communication: Group Context OR

Mathematics or natural science (3 credits)
A math or natural science course at the 100-level or above ..................3

Humanities, social sciences, math, natural sciences or Perspectives on the Human Condition .............................................3

Major specialty ................................................................. at least 30

Electives to total .................................................................60

Note: Students planning to go on to the baccalaureate degree need to work closely with their advisers and are encouraged to select courses meeting core requirements, and courses designated within majors and minors.

*ENGL 212 doesn’t fulfill the second half of the written communication requirement for the baccalaureate degree.


(Requirements of majors listed are in the Degrees and Programs section of this catalog.)

BACCALAUREATE DEGREES

THE BACCALAUREATE EXPERIENCE: THE CORE CURRICULUM

Undergraduate baccalaureate study at the University of Alaska Fairbanks is characterized by a common set of learning experiences known as the Core Curriculum. The core provides students with a shared foundation of skills and knowledge which, when combined with specialized study in the major and other specific degree requirements, is designed to prepare students to better meet the demands of life in the 21st century.

Through the baccalaureate core experience, every UAF student is expected to achieve:

- multi-dimensional competency in written and oral English—includeing comprehension of complex materials and clearly organized presentations of soundly reasoned thought in both oral and written form;
- a solid grasp of quantitative reasoning and mathematical application;
- an intellectual comfort with the sciences—including the objectivity of the scientific method, the frameworks which have nurtured scientific thought, the traditions of human inquiry, and the impact of technology on the world’s ecosystems;
- an appreciation of cultural diversity and its implications for individual and group values, aesthetics and social and political institutions;
- an understanding of our global economic interdependence, sense of historical consciousness, and a more critical comprehension of literature and the arts;
* a better understanding of one’s own values, other value systems and the relationship between value systems and life choices.

Through better integration of knowledge, it is expected that UAF graduates will more fully understand the changing world in which they will be expected to function.

The core curriculum applies to all students (new freshman and transfer students) admitted to and enrolling in baccalaureate degree programs at UAF in the fall semester, 1991, and thereafter.

Requirements

Communication (9 credits):
The communication requirement is to be completed during the first two years of study.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111X—Methods of Written Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 211X—Intermediate Exposition with Modes of Literature OR</td>
<td></td>
</tr>
<tr>
<td>ENGL 213X—Intermediate Exposition</td>
<td></td>
</tr>
<tr>
<td>SPC 131X—Fundamentals or Oral Communication: Group Context OR</td>
<td></td>
</tr>
<tr>
<td>SPC 141X—Fundamentals of Oral Communication: Public Context</td>
<td>3</td>
</tr>
</tbody>
</table>

Perspectives on the Human Condition (18 credits)

[Humanities and social sciences]

Complete the following six courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 100X/SOC 100X—Individual, Society and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ECON/PS 100X—Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>HIST 100X—Modern World History</td>
<td>3</td>
</tr>
<tr>
<td>ART/MUS/THR 200X—Aesthetic Appreciation: Interrelation of Art, Drama and Music</td>
<td>3</td>
</tr>
<tr>
<td>ENGL/FL 200X—World Literatures</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 322X—Ethics (Values and Choice)</td>
<td>3</td>
</tr>
</tbody>
</table>

One course at the 100-level or above in mathematical sciences [math, computer science, statistics] OR complete 12 credits from the above courses plus two semester-length courses in a single Alaska Native language or other non-English language taken at the university level.

Mathematics (3 credits)
The math requirement must be completed during the first two years of study.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 131X—Concepts and Contemporary Applications of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>OR MATH 200, 201, 202, 262, 272 or any math course having one of these as a prerequisite</td>
<td></td>
</tr>
</tbody>
</table>

Natural Sciences
Complete two 4-credit courses, with labs, from approved natural science core courses with depth or breadth emphasis.

Breadth emphasis: The two courses must be in different natural sciences or must be interdisciplinary in nature.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103X—Biology and Society OR</td>
<td></td>
</tr>
<tr>
<td>BIOL 104X—Natural History of Alaska</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 100X—Chemistry and the Modern World</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 120X—Earthquakes, Volcanos, Glaciers</td>
<td>4</td>
</tr>
<tr>
<td>MSL 111X—The Oceans</td>
<td></td>
</tr>
</tbody>
</table>

Depth emphasis: The two courses must be sequential courses or a two-semester survey in the basic natural sciences (biology, chemistry, earth science, physics). Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 105X-106X—Fundamentals of Biology I and II</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 111X-112X—Human Anatomy and Physiology I and II</td>
<td></td>
</tr>
<tr>
<td>CHEM 103X-104X—Basic General Chemistry/Beginnings in Biochemistry</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 105X-106X—General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>GEOS 101X—The Dynamic Earth and</td>
<td></td>
</tr>
<tr>
<td>GEOS 102X—Environmental Geology</td>
<td></td>
</tr>
<tr>
<td>OR GEOS 101X—The Dynamic Earth and</td>
<td></td>
</tr>
<tr>
<td>GEOS 112X—History of Earth and Life</td>
<td>8</td>
</tr>
<tr>
<td>PHYS 103X-104X—College Physics</td>
<td>8</td>
</tr>
<tr>
<td>PHYS 211-212X—General Physics</td>
<td>8</td>
</tr>
</tbody>
</table>

Library and Information Skills (0-1 credit)

Successful completion of library skills competency test or LS 100X or 101X prior to junior standing

Two designated writing intensive courses (w) and one oral communication intensive course (o) at the upper division level

(see degree and/or major requirements) 0 additional

Total Credits Required

38-39

BACHELOR OF ARTS REQUIREMENTS

Complete the baccalaureate core

38-39

Complete the following B.A. requirements in addition to the core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities and social sciences</td>
<td>18</td>
</tr>
<tr>
<td>Any combination of courses at the 100-level or above, with a minimum of 6 credits from the humanities and a minimum of 6 credits in the social sciences</td>
<td></td>
</tr>
<tr>
<td>OR up to 12 credits in a non-English language taken at the university level and a minimum of 6 credits in social science</td>
<td></td>
</tr>
</tbody>
</table>

Mathematics

One course at the 100-level or above in mathematical sciences [math, computer science, statistics] OR

Minor complex* at least 15

OR

Foreign/Alaska Native language option

Two years study of one foreign or Alaska Native language at the university level [high school language credits or native language proficiency may allow students to begin at the intermediate or advanced level]

Major complex* at least 31

Electives

12-19

Minimum credits required for degree

120

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 which are not in the primary discipline of that major or minor may be used to fulfill the humanities, social sciences, mathematics or natural science requirements.

*Departmental requirements for majors and minors may exceed the minimums indicated. Specific requirements are listed in the Degrees and Programs section of this catalog.


(Requirements of majors are listed in the Degrees and Programs section of this catalog.)


* * *
The following associate degree programs are approved as minors for the Bachelor of Arts degree: Applied Small Business, Aviation Technology, Culinary Arts, Early Childhood Development, Fire Science, Human Services Technology and Office Professions.

Double Major — If you’re a Bachelor of Arts degree candidate, you may complete two majors rather than a major and a minor. You must select the majors from those approved for the Bachelor of Arts degree. You must complete all general university requirements and all major requirements for both majors. If one major is from a program which requires 120 total credits and the other major is from a program which requires 130 credits, you must complete 130 credits. You must declare both majors when you’re admitted and/or through the change of major procedure. You’ll need to follow the degree requirements in a single catalog for both majors.

Double Degrees — If you want to earn more than one UAF bachelor’s degree, you must complete all general requirements as well as all major and minor requirements (if any) for all degrees. You’ll need to earn at least 24 semester credit hours beyond the total required for the first degree before any additional degrees can be awarded. For two degrees that you complete at the same time, you may follow requirements from two different catalogs.

BACHELOR OF SCIENCE REQUIREMENTS

Requirements Credits
Complete the baccalaureate core ........................................ 38-39
Complete the following B.S. requirements in addition to the core:
Natural sciences ............................................................................................ 8
A one-year sequence in one natural science beyond the core. The total natural science courses used to satisfy this requirement as well as the core requirement shall represent at least two different natural sciences.
Mathematics
The Baccalaureate Core shall include a calculus course of at least 3 credits. In addition, a 3-credit course in mathematics, computer science or statistics is required.

Major complex* ........................................................................................... at least 30
Minor complex (optional)* ......................................................................... 15 or more
Electives ........................................................................................................... 25-40

Minimum credits required for degree ................................................................ 120*

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 which are not in the primary discipline of that major or minor may be used to fulfill the humanities, social sciences, mathematics or natural science requirements.

Departmental requirements for majors and minors may exceed the minimums indicated and most B.S. degree programs require 130 credits. Specific requirements are listed in the Degrees and Programs section of the catalog.


(Double Major — 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 and/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:

1. 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 Admissions and Records by the end of registration.
2. 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. The catalog used for the minor must be the same as the catalog used for the major and general degree requirements.
3. 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 TECHNOLOGY REQUIREMENTS

Requirements Credits
Complete the baccalaureate core .................................................. 38-39
Complete the following B.T. requirements in addition to the core:
Communications (3 credits): ENGL 314 (to count as one of the upper-division writing intensive courses) ........................................................................ 3
Mathematics (3 credits):
One course at the 100-level and above in mathematical sciences ........................................................................................................... 3

Computer competency (3 credits):
Any 3-credit computer application or computer science course

Technology and society (3 credits)
Area of specialization** ........................................................................ minimum of 30

Complete one of the following options:
Option 1: (33 credits):
Note: For this option, no more than 25 percent of total course work may be taken in the School of Management.
ACCT 101/102—Elementary Accounting .................................................. 6
ECON 200—Principles of Economics ................................................................ 4
STAT 200—Elementary Probability and Statistics ........................................ 3
BA 151—Introduction to Business .................................................................. 3
BA 307—Personnel Management ................................................................... 3
BA 325—Financial Management .................................................................. 4
BA 330—Legal Environment of Business ................................................... 3
BA 343—Principles of Marketing .................................................................... 3
Specialty electives (Adviser approved upper division internship or advanced technical experience) ........................................................................... 3

Option 2: (38 credits):
Note: For this option, students must apply and be accepted to the Teachers for Alaska Program. The area of specialization must be one that can be certified for teaching.
ED 201—Introduction to Education .............................................................. 3
ED 309—Practicum in Education .................................................................... 2
ED 582—Teaching as Reflective Inquiry ....................................................... 4
ED 583—Teaching as Decision-Making and Invention .................................. 8
ED 585—Reflective Inquiry into Multicultural Classrooms and Communities ........................................................................................................... 3
ED 586—Designing Learning Environments ................................................ 3
ED 453—Secondary Student Teaching ......................................................... 12
Electives ................................................................. 1-7

Minimum credits required for degree ........................................ 120

Of the above, at least 39 credits must be taken in upper division (300-level or higher) courses.

The candidate for the B.T. degree must have 1) a minimum of 30 semester credits at UAF in the area of specialization (either completed in residence or accepted by transfer as equivalent to specific UAF courses), and 2) demonstrated competence in an applied or technical field. Competence may be demonstrated as follows:

1. Having earned an Associate of Applied Science degree in one of the following active programs:
   - Airframe and Powerplant
   - Applied Accounting
   - Applied Small Business
   - Aviation Technology
   - Community Health Practitioner
   - Culinary Arts
   - Early Childhood Development
   - Early Childhood Education
   - Financial Institutions Management
   - Human Services Technology
   - Interdisciplinary
   - Office Professions
   - Public Safety-Fire Science

2. Substitute one of the following as a demonstration of competency in an applied or technical field with the approval of the Curricular Affairs Committee of the Faculty Senate:
   a. An A.A.S. or similar degree earned at another institution
   b. State or federal certification deemed appropriate by the faculty
   c. Journeymen status in trades and industry

BACHELOR OF BUSINESS ADMINISTRATION REQUIREMENTS

Requirements ......................................................... Credits

Complete the baccalaureate core ........................................... 38-39

Complete the following B.B.A. requirements in addition to the core:

Mathematics
- MATH 161—Algebra for Business and Economics .......................... 3
- MATH 262 should be taken to complete the mathematics requirement for the core.

Social Sciences and Statistics (10 credits)
- STAT 200—Elementary Probability and Statistics .......................... 3
- ECON 200—Principles of Economics ............................................. 4

ECON 227—Intermediate Statistics for Economics and Business ............ 3

Common Body of Knowledge (31 credits)
- ACCT 101-102—Elementary Accounting ....................................... 6
- AIS 310—Intro to Management Information Systems OR
  - AIS 316—Accounting Information Systems .................................... 3
- BA 325—Financial Management ................................................. 3
- BA 330—Legal Environment of Business ..................................... 4
- BA 343—Principles of Marketing ............................................... 3
- BA 360—Operations Management .............................................. 3
- BA 390—Organization Theory and Behavior ................................ 3
- BA 462—Administrative Policy .................................................. 3
- ECON 324—Intermediate Macroeconomics OR
- ECON 350—Money and Banking .................................................. 3

Major complex* ........................................................................ at least 27

Minor complex** (optional) ................................................... 15 or more

Electives ........................................................................... 13 or more

Minimum credits required for degree ........................................ 130

Of the above, at least 39 credits must be taken in upper division (300-level or higher) courses.

Departmental requirements for majors may exceed the minimums indicated. Specific requirements are listed in the Degrees and Programs section of the catalog.

** The minor must be selected outside of the School of Management. Requirements for minors may exceed 15 credits. Specific requirements are listed in the Degrees and Programs section of the catalog.


(Requirements of majors are listed in the Degrees and Programs section of this catalog.)

BACHELOR OF EDUCATION REQUIREMENTS

See Education in Degrees and Programs section.

BACHELOR OF MUSIC REQUIREMENTS

See Music in Degrees and Programs section.

BACHELOR OF FINE ARTS REQUIREMENTS

B.F.A. general requirements are the same as the requirements for the B.A. except for the minor complex which is replaced by a minor specialization of 9 upper division credits in art.

Senior Debora Lewis looks over the list of scholarships available to UAF students.
Fees and Financial Aid

Tuition

<table>
<thead>
<tr>
<th>Total Credit Hours</th>
<th>Resident Student</th>
<th>Non-resident Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$ 50</td>
<td>$ 50</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>4</td>
<td>200</td>
<td>600</td>
</tr>
<tr>
<td>5</td>
<td>250</td>
<td>750</td>
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<tr>
<td>6</td>
<td>300</td>
<td>900</td>
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<tr>
<td>7</td>
<td>350</td>
<td>1,050</td>
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<tr>
<td>8</td>
<td>400</td>
<td>1,200</td>
</tr>
<tr>
<td>9</td>
<td>450</td>
<td>1,350</td>
</tr>
<tr>
<td>10</td>
<td>500</td>
<td>1,500</td>
</tr>
<tr>
<td>11</td>
<td>550</td>
<td>1,650</td>
</tr>
<tr>
<td>12</td>
<td>600</td>
<td>1,800</td>
</tr>
<tr>
<td>13 or more</td>
<td>650</td>
<td>1,950</td>
</tr>
</tbody>
</table>

Students enrolled in post-baccalaureate or graduate credit courses (those numbered 500-699) are charged $100 per credit for residents to a maximum of $900; and $200 per credit for non-residents to a maximum of $1,800. The maximum charge for any combination of undergraduate and graduate credits doesn’t exceed $900 for residents and $1,800 for non-residents.

Definition: Alaska Resident

Alaska residents, members of the United States military on active duty and their dependents, members of the Alaska National Guard and their dependents, as well as residents of the Yukon Territory and the Northwest Territories are exempt from a non-resident tuition fee. For purposes of non-resident tuition a resident is any person who has been physically present in Alaska for one year (excluding only vacations or other absence for temporary purposes with intent to return) and who declares intention to remain in Alaska indefinitely. However, any person who, within one year, has declared himself/herself to be a resident of another state, voted in another state, or did any act inconsistent with Alaska residence shall be deemed a non-resident for purposes of non-resident tuition. An unemancipated person under the age of 18 who has a parent or guardian who qualifies as an Alaskan resident, as defined above, shall be deemed a resident. and otherwise such unemancipated persons under the age of 18 shall be deemed a non-resident for purposes of non-resident tuition.

This definition of Alaska residency status is solely for the purposes of tuition payment at UAF. The requirements of the university may or may not be the same as requirements of other agencies of the state of Alaska.

Persons wishing to apply for resident status should complete the application for residency status form (the form may be obtained from the Office of Admissions and Records in Signers’ Hall.) Applicants should attach a copy of documentary proof of residency in Alaska for the past 12 months. Records presented in support of residency application cannot be returned. Therefore, it is suggested that photocopies of such records be made to turn in with the application. The completed form and the proof of residency should be returned to the Office of Admissions and Records prior to the date of registration.

Acceptable examples of proof of residency are rent receipts, checks written to local merchants throughout the year, a statement from an Alaskan employer, current military I.D., Alaskan high school or college transcripts, or Postal Service verification of an Alaskan address. Contact Admissions and Records for more information.

Other Fees Associated

with Registration

(per semester unless otherwise indicated)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Fees</td>
<td>$3 - 250</td>
</tr>
<tr>
<td>Deferred Fee Charge</td>
<td>20</td>
</tr>
<tr>
<td>Graduate Extended Registration Fee</td>
<td>200 or 300</td>
</tr>
<tr>
<td>Health Fees</td>
<td></td>
</tr>
<tr>
<td>(Required for full-time students: undergraduates taking 12 or more credits, and graduate students taking 9 or more credits.)</td>
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<tr>
<td>Health Center Fee</td>
<td>55</td>
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<tr>
<td>Health Insurance Fee</td>
<td>163</td>
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<tr>
<td>Housing Fees:</td>
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<tr>
<td>Housing Reservation/Deposit Fee</td>
<td>75 - 100</td>
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<td>Residence Halls</td>
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<td>Double Room/Double Occupancy</td>
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<tr>
<td>Single Room</td>
<td>710</td>
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<tr>
<td>Student Apartment Complex</td>
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</tr>
<tr>
<td>(each student)</td>
<td>780</td>
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<tr>
<td>Married Student Apartments</td>
<td>260-490/400/month</td>
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<tr>
<td>Board Plan (three plans)</td>
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<tr>
<td>Board Net</td>
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<tr>
<td>Late Add Fee</td>
<td>25-65</td>
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<tr>
<td>Late Payment Fee</td>
<td>25-65</td>
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<tr>
<td>Music Course Fees</td>
<td></td>
</tr>
<tr>
<td>(music majors maximum: 105)</td>
<td>35-145</td>
</tr>
<tr>
<td>Parking Fee</td>
<td>75/year</td>
</tr>
<tr>
<td>Student Activity Fee (8 credits or more)</td>
<td>40/semester</td>
</tr>
</tbody>
</table>

All fees are subject to change.

Definitions: Other Fees Associated

with Registration

Course Fees — Not all courses have course fees associated with them. Fees for courses range from $3 to $250. See the course description section of the catalog to check on fees for individual courses.

Deferred Fee Charge — A processing fee of $20 is added to the total amount due when you’re approved for deferred fee payment. See Paying Fees.

Graduate Extended Registration Fee — Graduate students extending registration from the previous semester must pay a graduate extended registration fee of $200 to $300.

Health Center Fee — The $55 Health Center fee provides basic medical and counseling services at the Center for Health and Counseling. All full time students, students living in university housing, and students purchasing the student health insurance plan pay the Health Center Fee. For the purposes of fee payment, full time students are undergraduate students taking 12 or more credits and graduate students taking 9 or more credits or registered for “active” extended registration.
Active duty military students have the option of paying the Health Center fee. The Health Center fee will be $55. A waiver of this fee is available for full-time students if: none of their courses are on the main campus; they do not live in university housing; and they are not enrolled in the student health insurance plan. A health center fee waiver form may be obtained during fee payment at the beginning of the semester.

A brochure describing Center for Health and Counseling services is available at the center.

**Health Insurance Fee** — The university requires that all full-time students and students living in university housing be covered by a health insurance plan. For the purpose of fee payment, full-time students are undergraduate students taking 12 or more credits and graduate students taking 9 or more credits or registered for "active" extended registration.

At the time of fee payment the student will purchase the student health insurance plan through the university, or if covered by an alternate health insurance plan, may waive the student health insurance fee. The student health insurance waiver form is obtained by presenting indication of the alternate coverage at the time of fee payment. Waiver forms are available at the Center for Health and Counseling as well as at fee payment locations. Students enrolled in 6-11 credits have the option of purchasing the student health insurance plan if they also pay the Health Center fee. The student health insurance fee is $163 per semester. The plan provides basic coverage for accidents and illnesses that are not pre-existing. Questions regarding the student health insurance plan can be directed to the insurance coordinator at the Center for Health and Counseling.

Health insurance coverage for spouse and/or dependents is also available. Contact the Center for Health and Counseling for information.

The international student health insurance plan provides the same benefits as the domestic plan. In addition, it provides coverage for medical evaluation or repatriation. The cost for international student health insurance is $418 for the year. This fee is $35 for a first-time placement and a second program plan.

For information.

When applying for housing, you need to send a $100 reservation damage deposit to the Housing Office with your completed application. Room rent, along with all other fees, is due in full at registration (see Payment of Fees).

When registering, each residence hall student is required to buy a board plan for cafeteria meals. Meal tickets became effective at the evening meal of the first day of registration each semester. For more information, see Housing. If you don't live on campus, you may be authorized by the director of residence life to purchase a board program. The cost includes the price of the board program selected plus a board net charge of $110. This additional charge is used to maintain the dining facilities and equipment. Board net costs are paid by residential students as part of their rent.

Late Add Fee/Late Registration Fee — If you pay fees or add a class later than you registered for that purpose, you'll have to pay a late fee of $25 for the first working day, plus $5 for each succeeding working day to a maximum of $65. No late fee will be charged when you change from one section of a course to another or when you have to add another course to replace a canceled course in which you were previously registered. This fee is refunded only if all classes for which you are registered are canceled.

Music Course Fees — Fees are charged for the following services or facilities: private instruction (per applied music course), $145; music instruction (class lesson course), $70; music lesson fee, $35; class instruction (functional piano course), $70; fee for music major is $35. Music majors carrying less than 12 credits must pay full fees. Full-time music majors (12 credits or more) will not have to pay more than $305 for any combination of the above fees. Practice room use by student not enrolled in one of the above music courses, on space available basis, is $70.

**Parking Fee** — A $75 annual fee or a $40 semester fee is charged for off-campus automobile parking.

**Student Activity Fee** — If you're carrying eight or more credit hours (including both on- and off-campus courses), or register for "active" extended registration, you will be charged a $40 per semester student activity fee. If you live in university housing, you will be charged the $40 fee regardless of the number of credit hours you take. You have the option of paying the $40 fee if you're taking one to seven credits.

This fee supports the activities of ASUAF (student government) which represents student views and concerns with the university administration, the board of regents and the Alaska Legislature. This fee also pays for the publication of the Sun-Star, the student newspaper.

Paying the campus activity fee entitled you to use the Patty Center recreational facilities, and be admitted to student prices to university sponsored athletic events. The fee also entitles you to student rates at all ASUAF functions and services, including movies, dances, concerts, rentals, ombudsman, book exchange, legal advice and intramural sports; use of Wood Center facilities; and participation in student elections.

### Other General Fees

(Per use unless otherwise indicated)

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission Processing Fee</td>
<td>$15</td>
</tr>
<tr>
<td>Certificate or Associate Degree</td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td></td>
</tr>
<tr>
<td>Baccalaureate or Graduate Degree</td>
<td>$30</td>
</tr>
<tr>
<td>Application</td>
<td></td>
</tr>
<tr>
<td>Credit by Examination Fee</td>
<td>$15/credit</td>
</tr>
<tr>
<td>Late Placement and Guidance Test Fee</td>
<td>$5</td>
</tr>
<tr>
<td>Program Plan Fee</td>
<td></td>
</tr>
<tr>
<td>Records Duplication Charge</td>
<td>$2-10</td>
</tr>
<tr>
<td>Textbooks (approximate)</td>
<td>$250/semester</td>
</tr>
<tr>
<td>Transcript</td>
<td></td>
</tr>
<tr>
<td>Regular Service</td>
<td>$3/transcript</td>
</tr>
<tr>
<td>Immediate Service</td>
<td>$10/transcript</td>
</tr>
</tbody>
</table>

All fees are subject to change.

### Definitions: Other General Fees

**Admission Processing Fee** — You must submit a $30 processing fee with your application for admission to a baccalaureate, master's or doctoral degree. A $15 fee is required with your application to a certificate or associate degree program.

**Credit by Examination Fee** — You will be charged a $15 per credit hour fee for credit by examination.

**Late Placement and Guidance Test Fee** — A fee of $5 is charged for a placement and guidance test taken at an unscheduled time.

**Program Plan Fee** — The Office of Admissions and Records will provide without charge one plan for a schedule of courses leading to a degree for currently enrolled degree students with a declared major. A second program plan will be provided for $5.

**Records Duplication Charge** — You may obtain copies of documents in your file in the Admissions and Records Office (excluding transcripts from any school) at $10 per request. These copies are unofficial and bear a statement to that effect. Mailing copies of documents provided through this service is not available.
Financial Aid

What is Financial Aid?

Financial aid helps make college affordable by paying for college and university costs. Financial aid can help pay for tuition and fees, books and supplies and living expenses. The main purpose of financial aid is to provide choice, access and persistence. Choice means students can choose to pursue a college education without first looking at the price tag. Access means students will be able to pay costs of getting into college. Persistence means students will be able to stay in college long enough to complete their educational objectives.

Who Can Apply?

You can apply for financial aid if you're a U.S. citizen or eligible non-citizen and are admitted or plan to be admitted to the university. Clarifications about student eligibility based on citizenship and residency can be obtained at the financial aid office.

Who Receives Financial Aid?

Approximately 62 percent of all full-time UAF students receive some type of financial aid. Even though students enrolled part time can receive some type of financial aid, the major programs require full-time enrollment.

To receive any financial aid, you must:
1. Be admitted by the Office of Admissions and Records.
2. Be enrolled in a program leading to a degree, diploma or certificate.
3. Be making satisfactory academic progress toward your educational goal.
4. Submit an application to the proper agency administering the financial aid programs.

In addition to these requirements, to receive federal Title IV funds, you must not be in default on any federal Title IV loan or owe a refund on any federal Title IV grant.

Where is the Financial Aid Office Located?

The financial aid office is located on the fifth floor of the Gruening Building on the Fairbanks campus of the University of Alaska Fairbanks. Office hours are from 8 a.m. to 5 p.m. Monday through Friday. The telephone number is (907) 474-7256.

How Do Students Apply?

1. Complete and mail the financial aid application to apply for all financial aid programs except the Alaska Student Loan Program.
2. Complete a UAF Financial Aid information sheet and return it to the UAF Financial Aid Office.

Completing these steps constitutes application for any financial aid offered at UAF, except student loans, State of Alaska programs and scholarships. A separate application is required for each loan program. You may be required to submit other documents before aid is received. The forms needed to apply for all financial aid programs are available at the Financial Aid Office at UAF.

You may apply for the Pell Grant, Stafford Loans and the SLS throughout the school year.

How is Eligibility Determined?

Residency and physical presence in Alaska for at least two years immediately before applying establishes eligibility for the Alaska Student Loan Program. Residency and eligibility requirements are explained in greater detail in “The Alaska Student Loan Program” brochure available from the Alaska Commission on Postsecondary Education, P.O. Box FP, Juneau, Alaska 99801.

Submitting a completed application, along with necessary documents, begins the process of determining who will get federal aid. An analysis of your ability to pay is compared with UAF’s standard expense budget. If the amount of money available is less than total college expenses, you have a financial need and are eligible for aid.

Estimated expense budgets for typical full-time students for the school year:

<table>
<thead>
<tr>
<th></th>
<th>Married Couple or Single Parent</th>
<th>Single Student Lives Alone</th>
<th>Single Student Lives in UAF Residence Hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition, fees*</td>
<td>$1,764</td>
<td>$1,764</td>
<td>$1,764</td>
</tr>
<tr>
<td>Books, supplies</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Food, housing</td>
<td>6,345</td>
<td>4,770</td>
<td>3,446</td>
</tr>
<tr>
<td>Transportation</td>
<td>1,017</td>
<td>1,017</td>
<td>324</td>
</tr>
<tr>
<td>Misc./personal</td>
<td>1,188</td>
<td>1,188</td>
<td>1,188</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$10,814</td>
<td>$9,239</td>
<td>$7,222</td>
</tr>
</tbody>
</table>

*Tuition for non-Alaska residents, add $2,600.

Standard budgets do not always fit everyone. If you have unusual expenses such as medical bills, special child care or emergency items, the Financial Aid Office will try to provide methods of covering these additional expenses.

What Types of Aid are Available?

Grants and Scholarships

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

The Pell Grant is a federal grant for undergraduates to help start paying college costs. Since this grant is based on financial need, every undergraduate should apply for it. Once you have applied, the federal processor will send you a Student Aid Report (SAR) indicating whether you qualify for a Pell Grant.

refunds will be issued after the withdrawal deadline for any course.

C. For courses meeting less than one week:
1. 100 percent refund of tuition and fees — withdrawal on or before the first day of the course.
2. No refund — withdrawal after the first day of the course.
3. For the purpose of the refund policy in C. 1. and 2., the first day of the course is the start date as indicated in the semester class schedule.
4. You need to request a refund in writing to the business office when you withdraw. The date of withdrawal on your official withdrawal form, determines your eligibility for a refund.
5. If your registration is canceled as a result of disciplinary action, you forfeit all rights to a refund of any portion of your tuition and fees.
6. Vocational/technical course fees are subject to this refund schedule.
7. In case the operations of UAF are adversely affected by war, riot, natural act, action of civil authority, strike or other emergency or condition, the university reserves the right to take action to curtail part or all of its operations, including action to cancel classes and action to discontinue services. In any case in which a significant curtailment is judged proper by UAF, the university's liability is limited to (at most) a refund of tuition and fees paid.
8. Housing refunds: see the housing section of this catalog.
Send the SAR to the Financial Aid Office. Pell Grants range up to $2,400 for the 1991-92 school year. Eligible students enrolled in four-year degree programs can receive a Pell Grant for more than five years; no more than six years of Pell Grant are available for students in five-year programs.

The Supplemental Educational Opportunity Grant (SEOG) is a federal grant for exceptionally needy undergraduate students. SEOGs at UAF could range from $100 to $4,000 each year.

State Educational Incentive Grants (SEIG) are funded by the state of Alaska for needy students enrolled full-time in undergraduate programs at postsecondary institutions in any state. Grants range from $100 to $1,500 each year. Application materials include filing the financial aid and SEIG applications available during the spring term.

The Bureau of Indian Affairs (BIA) offers federal grants to undergraduate full-time students. You must be at least one-quarter American Indian or Alaskan Native to apply. These grants are based on financial need and supplement other financial aid. Grants range from $50 to $3,000 or more each year. The average grant at UAF is $1,600. Further information on BIA grants can be obtained from the BIA Regional Office, Anchorage, Alaska, 99501-5196, telephone (907) 271-4115.

Some regional and village corporations provide scholarships to shareholders. Contact your local corporation for details on eligibility and application procedures.

Scholarships are administered by the UA Foundation, the University of Alaska Fairbanks, and the Financial Aid Office as well as various academic departments on campus. Separate applications are generally required for each scholarship. You can apply for most UA Foundation and UAF Financial Aid scholarships by submitting a single application available in late January at the Financial Aid Office. Scholarship amounts depend on the funding source and vary greatly among scholarships. More information can be obtained from the University of Alaska Foundation, 206 Beverly Building, Fairbanks, Alaska 99775, telephone (907) 474-7687.

If you're a freshman applicant with a GPA of 3.5 and a composite ACT score of 26 or an SAT score of 1200, you're eligible to receive a Chancellor's Scholarship. This is a one-year tuition waiver. If you're a National Merit Finalist, you're eligible to receive a $1,000 scholarship ($12,000 for Alaska residents) to cover costs for four years. Contact Admissions for more information.

Tuition waivers and talent grants are available in limited numbers to first-time freshmen and new transfer undergraduate students with demonstrated abilities in numerous fields of study. You should apply to the head of the department in which you plan to study, and to the Office of Admissions Counseling, located in Signers' Hall, UAF, Fairbanks, Alaska 99775, telephone (907) 474-7822.

Work

UAF employs student workers for various tasks throughout the year. Employment is administered by individual departments and restricted to full-time students. Students generally work no more than 20 hours each week. Pay rates are based on the job classifications and average pay can vary from $150 to $400 each month. Further information on student employment can be obtained from Employee Relations, 101 Eielson Building, UAF, Fairbanks, Alaska 99775, telephone (907) 474-7700.

College Work Study is a federal program which provides jobs for graduate and undergraduate students with financial need. Job placement and working conditions are similar to regular student employment.

Loans

A loan for college costs is money that must be repaid. Loans represent a major source of assistance you should consider as you try to meet the full costs of your education. Educational loans generally have long-term repayment schedules, offer lower interest rates, and often have provisions for deferring payments. Some loans are based on residency in Alaska while other loans are based on financial need.

The Alaska Student Loan Program (ASL) is administered by the state of Alaska to provide student loans to eligible Alaska residents. Eligibility is based on residency and physical presence in the state of Alaska for at least two years before applying.

This program is the major source of financial aid for students at UAF. Undergraduate and vocational students may borrow up to $5,500 each school year. Graduate students may borrow up to $8,000 each school year. The Alaska Student Loan, combined with estimated income for the school year, cannot exceed estimated costs of attendance for the Alaska Student Loan. Repayment begins no later than one year after the borrower's studies are terminated. The finance charge is eight percent interest a year on the outstanding balance. The state of Alaska will pay the interest for students during qualifying periods.

The priority deadline for receipt of applications is May 15 for the school year beginning in the fall. Applicants must apply each year. Applications are available throughout the state at high schools and postsecondary schools. Further information about the Alaska Student Loan Program can be obtained from the Division of Student Financial Aid, Alaska Commission on Postsecondary Education, Box 98811, Fairbanks, AK 99701, telephone (907) 459-2092 or (907) 459-2090. The Alaska Commission on Postsecondary Education provides access to information about your Alaska Student Loan after you have submitted the application. Access is by way of a computer terminal located in the UAF Rasmussen Library. It is available to the public during normal library hours; you may get answers to questions about the processing of your loan application.

The following table shows what your monthly payments would be over a 10-year repayment cycle for various loan amounts borrowed. In addition to the principal which must be repaid, interest accrues at a rate of eight percent per year.

<table>
<thead>
<tr>
<th>Total Loan</th>
<th>Monthly Payments</th>
<th>8 Percent Interest</th>
<th>Principal</th>
<th>Total</th>
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</thead>
<tbody>
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<td>$3,000.00</td>
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<td>$3,000.00</td>
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<tr>
<td>$4,000.00</td>
<td>$41.60</td>
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<td>$7,000.00</td>
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<td>$20,000.00</td>
<td>$30,719.20</td>
</tr>
</tbody>
</table>

The Stafford Student Loan Program provides federally subsidized student loans from a participating lender, such as a bank, credit union or savings and loan association. First- and second-year students may borrow up to $2,625 each year. Upper level undergraduates may borrow up to $4,000 each year with a total cumulative maximum of $17,250. Graduate students may borrow up to $7,500 each year up to a total, including all prior Stafford Loans, of $43,750. Since this loan is based on financial need, students must apply for the Pell Grant before the loan application can be certified by the Financial Aid Office.

Many national lenders and a few local lenders participate in the program. Inquire at your hometown bank or pick up an application from a representative group of lenders at the Financial Aid Office.

Supplemental Loans for Students (SLS) is a federal loan program which allows all students to borrow up to $4,000 each year with an aggregate loan maximum of $20,000. Other aid must be considered when determining eligibility. Payment of interest is due monthly although repayment of principal will not begin until the student leaves school.

Parent Loan for Undergraduate Students (PLUS) is a program for the parents of dependent students. Parents can borrow up to $40,000 each school year on behalf of an eligible student. A variable interest rate or finance charge, not to exceed 12 percent, is determined each year for SLS and PLUS programs.

The Family Education Loan Program is a state loan program which allows the student's family to share the cost of the student's education. As an alternative to the ASL, the family
member can borrow up to $5,500 for an undergraduate and up to $6,500 for a graduate. The interest rate is 5.5 percent.

**University Loans** are short-term loans for enrolled students and are made to cover unanticipated or emergency expenses. Students who have completed at least one semester as a full-time student in good standing at UAF may apply for a maximum of $5,500 per academic year. Interest rate is four percent per annum.

To apply for a university loan, you must be in good academic standing and have no outstanding debt with UAF. You are required to verify your need for the loan. Applications will be accepted from the first day of registration until 30 days before the end of each semester.

**Emergency Loans** are available to regularly enrolled full-time students whose financial need is modest and temporary. Students may borrow up to $100. A $2 service charge is assessed for each loan.

To apply, you must be in good academic standing and have no outstanding debt with UAF. Applications will be accepted from the first day of registration until 30 days before the end of each semester.

To be eligible for the federal Title IV student aid programs: Pell Grant, SEOG, College Work Study, GSL, SLS and PLUS, you cannot owe a refund on any federal grant nor can you be in default on any federal loan for attendance at any institution. Some financial aid is based on the expected receipt of aid from other programs. To receive as much as possible, you should apply for the Pell Grant Program. More information about the federal programs is given on the "Federal Financial Aid Fact Sheet." The Federal Student Aid Information Center has a toll free number, 1-800-333-4636, 9 a.m. to 5:30 p.m., Monday through Friday, eastern time, for students, parents and educators to inquire about student aid and the application process.

Each applicant for financial aid will be sent a Financial Aid Notice which explains the type of aid that is offered by the Financial Aid Office. Students may accept or decline the offer of aid. Students must apply each year for financial aid.

UAF reserves the right to revise any financial aid award. Modification of awards may be required due to lack of federal or state funding, corrections or changes in the data reported to the university by parents and/or students, receipt of additional awards from non-college sources, unintended errors, student changes in credit load, change in residence, or other reasons consistent with university policies and procedures.

### What are the Application Deadlines?

**Applications**

<table>
<thead>
<tr>
<th>Program</th>
<th>Priority deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska Student Loan</td>
<td>May 15</td>
</tr>
<tr>
<td>Pell Grant</td>
<td>Apply anytime during the school year</td>
</tr>
<tr>
<td>UAF scholarships</td>
<td>February 15</td>
</tr>
</tbody>
</table>

### What Does it Take to Remain Eligible?

To continue to receive financial aid, you must be "in good standing" which means undergraduates must earn a cumulative 2.0 or higher grade point average for all course work for which financial aid was paid; graduate students must maintain at least a 3.0 GPA to be eligible. The semester GPA must be 1.5 for undergraduates or 2.5 or higher for graduate students. The Financial Aid Office monitors the academic progress of aid recipients. Both semester and cumulative GPA must be maintained for continued eligibility. You can receive aid for a maximum of 10 semesters or 156 semester credits for an undergraduate degree or 36 semester credits for a master's degree. Doctoral candidates must follow the time frames determined by their departments and institutional committees.

Aid will be suspended if you fail to complete the required credits with the minimum GPA or exceed the maximum number of semesters or credit hours. Generally, students can regain eligibility for participation in student aid by completing 12 credits with at least a 2.0 GPA. Any student whose aid has been suspended may appeal that decision. A written appeal which states the reasons for the failure to maintain satisfactory progress standards and the steps taken to meet those standards in the future is required. Appeals should be directed to the director of Financial Aid. A complete description of the satisfactory progress requirements is available at the Financial Aid Office.

### How is Payment Made to the Student?

Tuition, fees and all other amounts due UAF at the time of disbursement must be paid before the proceeds of your financial aid are released. Disbursement is usually in equal amounts, one-half of total award, at the beginning of each semester. All financial aid checks are released to students at the Business Office in Signers' Hall. Proper identification with photograph must be presented before checks will be released.

Proceeds of any financial aid will be used to pay all outstanding deferred fees, and all other past due amounts, when the financial aid is disbursed to you, regardless of the deferred fee payment due dates.

You should allow at least five days for processing after the award letter is signed and returned before inquiring about your check.

According to the Tax Reform Act of 1986, all scholarships, fellowships and federal financial aid grants are counted as taxable income to the extent these awards, either individually or together, exceed the cost of tuition and related expenses. It is your responsibility to report all such aid on your tax return.

When a student withdraws from classes, a refund of university charges may be due. Any refund due will first be applied to the federal, state and institutional financial aid programs from which the student received aid during the school year. The part of the refund applied to federal programs is equal to the proportionate amount received from the federal programs other than CWS earnings compared to the total of all aid received, exclusive of all work earnings. The remaining portion of any refund will be applied to state and institutional programs if the student received aid from these programs.

### What are the Rights and Responsibilities of Accepting Financial Aid?

#### Your rights

A. Know what financial programs are available to you.
B. Know how to apply, how eligibility is determined and how awards are determined.
C. Know how the university determines whether you are making satisfactory academic progress toward your degree and what happens if you are not.
D. Request an explanation of your financial aid package, including what portion is gift and what portion must be repaid and the terms of repayment.
E. Know the costs of attending UAF and the refund policy for students who withdraw.

#### Your responsibilities

A. Complete all financial aid forms accurately and file them on time.
B. Apply every year because financial aid is not automatically extended from year to year.
C. Provide correct information on all applications and documents submitted.
D. Read and understand all documents you sign. You should also keep copies of them for your records.
E. Know the limits and conditions of financial aid programs.
F. Notify the Financial Aid Office of any change of address, name, marital status, attendance status or receipt of additional awards.

For more information on financial aid at UAF, contact: Financial Aid Office, University of Alaska Fairbanks, Fifth Floor, Grunewing Building, Fairbanks, Alaska 99775, telephone (907) 474-7256.
member can borrow up to $5,500 for an undergraduate and up to $6,500 for a graduate. The interest rate is 5.5 percent.

**University Loans** are short-term loans for enrolled students and are available to cover unanticipated/emergency education-related expenses. Students who have completed at least one semester as a full-time student in good standing at UAF may apply for a maximum of $500 per academic year. Interest rate is four percent per annum.

To apply for a university loan, you must be in good academic standing and have no outstanding debt with UAF. You are required to complete an application for each loan you desire to have accepted from the first day of registration until 30 days before the end of each semester.

**Emergency Loans** are available to regularly enrolled full-time students whose financial need is modest and temporary. Students may borrow up to $100. A $2 service charge is assessed for each loan.

To apply, you must be in good academic standing and have no outstanding debt with UAF. Applications will be accepted from the first day of registration until 30 days before the end of each semester.

To be eligible for the federal Title IV student aid programs: Pell Grant, SEOG, College Work Study, GSL, SLS and PLUS, you cannot owe a refund on any federal grant nor can you be in default on any federal loan for attendance at any institution. Some financial aid is based on the expected receipt of aid from other programs. You will receive aid as a result of your work when you complete your assigned job.

**Tuition and Fees** are due prior to the first day of registration. The Federal Student Aid Information Center has a call center free number, 1-800-333-4636, a.m. to 3:00 p.m., Monday through Friday, eastern time, for students, parents and educators to inquire about student aid and the application process.

Each applicant for financial aid will be sent a Financial Aid Notice which explains the type of aid that is offered by the Financial Aid Office. Students may accept or decline the offer of aid. Students must apply each year for financial aid.

UAF reserves the right to revise any financial aid award. Modification of awards may be required due to lack of federal or state funding, corrections or changes in the data reported to the university by parents and/or students, receipt of additional aid from non-college sources, unintended error, student changes in credit load, change in residence, or other reasons consistent with university policies and procedures.

### What are the Application Deadlines?

**Applications**
- Alaska Student Loan: May 15
- Pell Grant: Apply anytime during the school year
- UAF scholarships: February 15

### What Does it Take to Remain Eligible?

To continue to receive financial aid, you must be in good standing which means undergraduates must earn a cumulative 2.0 or higher grade point average for all course work for which financial aid was paid; graduate students must maintain at least a 3.0 GPA to be eligible. The semester GPA must be 1.5 for undergraduates or 2.5 or higher for graduate students. The Financial Aid Office monitors the academic progress of aid recipients. Both semester and cumulative GPA must be maintained for continued eligibility. You can receive aid for a maximum of 36 semester credits for an undergraduate degree or 36 semester credits for a master's degree. Doctoral candidates must follow the time frames determined by their departments and institutional committees.

Aid will be suspended if you fail to complete the required credits with the minimum GPA or exceed the maximum number of credits. Generally, students can regain eligibility for participation in student aid by completing 12 credits with at least a 2.0 GPA. Any student whose aid has been suspended may appeal that decision. A written appeal which

states the reasons for the failure to maintain satisfactory progress standards and the steps taken to meet those standards in the future is required. Appeals should be directed to the director of Financial Aid. A complete description of the satisfactory progress requirements is available at the Financial Aid Office.

### How is Payment Made to the Student?

Tuition, fees and all other amounts due to UAF at the time of disbursement must be paid before the proceeds of your financial aid are released. Disbursement is usually in equal amounts, one-half of total award, at the beginning of each semester. All financial aid checks are released to students at the Business Office in Signers' Hall. Proper identification with photograph must be presented before checks will be released.

Proceeds of any financial aid will be used to pay all outstanding deferred fees, and all other past due amounts, when the financial aid is disbursed to you, regardless of the deferred fee payment due dates.

You should allow at least five days for processing after the award letter is signed and returned before inquiring about your check.

According to the Tax Reform Act of 1986, all scholarships, fellowships and federal financial aid grants are counted as taxable income to the extent these awards, either individually or together, exceed the cost of tuition and related expenses. It is your responsibility to report all such aid on your tax return.

When a student withdraws from classes, a refund of university charges may be due. Any refund due will be applied to the federal, state and institutional financial aid programs from which the student has been paid the previous year. The part of the refund applied to federal programs is equal to the proportionate amount received from the federal programs other than CWS earnings compared to the total of all aid received, exclusive of all work earnings. The remaining portion of any refund will be applied to state and institutional programs if the student received aid from those programs.

### What are the Rights and Responsibilities of Accepting Financial Aid?

Your rights
- As a financial aid recipient at UAF, you have the right to:
  A. Know what financial programs are available to you.
  B. Know how to apply, how eligibility is determined and the terms and conditions related to your aid.
  C. Know how the university determines whether you are making satisfactory academic progress toward your degree and what happens if you are not.
  D. Request an explanation of your financial aid package, including what portion is gift and what portion must be repaid and the terms of repayment.
  E. Know the costs of attending UAF and the refund policy for students who withdraw.

Your responsibilities
- To receive financial aid at UAF, you must:
  A. Complete all financial aid forms accurately and file them on time.
  B. Apply every year because financial aid is not automatically extended from year to year.
  C. Provide correct information on all applications and documents submitted.
  D. Read and understand all documents you sign. You should also keep copies of them for your records.
  E. Know the limits and conditions of financial aid programs.
  F. Notify the Financial Aid Office any change of address, name, marital status, attendance status or receipt of additional awards.

For more information on financial aid at UAF, contact:
Financial Aid Office, University of Alaska Fairbanks, Fifth Floor, Grudning Building, Fairbanks, Alaska 99775, telephone (907) 474-7256.
## Financial Aid in Brief

<table>
<thead>
<tr>
<th>Eligibility Requirements</th>
<th>Pell Grants</th>
<th>BIA Grants</th>
<th>Supplemen-tal Edu-ca-tional Opportuni-ty Grants (SEOG)</th>
<th>College Work Study (CWS)</th>
<th>UAF Scholar-ships</th>
<th>Stafford Loans (for-merly guar-anteed stu-dent loans)</th>
<th>Alaska Stu-dent Loans</th>
</tr>
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<tbody>
<tr>
<td>Undergraduate</td>
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<td>Must be admitted to degree or certificate program at UAF</td>
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<td>Must be U.S. citizen or eligible non-citizen</td>
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<tr>
<td>Must have financial need</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Must be making satisfac-tory academic progress</td>
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<td>Must apply by May 15</td>
<td>No*</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No: Feb. 15</td>
<td>No*</td>
<td>No**</td>
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<tr>
<td>Must be a full-time student</td>
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<td>Must be repaid</td>
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</table>

* Can apply throughout the school year
** Priority deadline is May 15

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Cadets Pamela Hull and Marianne Miller work together to find the correct position on their map.
Melissa Andrews, left, and Stephanie Place, right, are roommates in Wickersham Hall.

Wickersham Hall is the only all women residence hall on campus.
Residence Halls
Each residence hall is staffed with a Residence Hall Director and several student assistants. The Residence Hall Director is responsible for administration and programming within the hall. The resident assistants are full-time students who work with the head resident in planning and administering a program of social, recreational and cultural activities.

Who is Eligible?
In general, you must maintain full-time status (12 credits for undergraduate and nine credits for graduate students) to qualify for student housing. Graduate student extended registration is considered full time for purposes of housing allocation. Students already living on campus renew their contracts each semester in order to maintain eligibility for the following semester. You should consult the housing staff about regulations concerning current semester room charges are

What Does it Cost?

Room Rent — Along with all other fees, room rent is due in full at registration. Current semester room charges are $590 per person in double rooms; $710 for single rooms; and $780 per person in apartments. These rates are subject to change prior to July 1. Room fees permit the use of hall services such as lounge and recreation rooms, non-pay laundry areas and local telephone service.

Refund of Deposits — Room reservation/damage deposits will be refunded for students who choose to withdraw their housing contracts if a written statement is received by the Housing Office at least 30 days prior to the official semester opening.

During occupancy, deposits are held until the contract period ends. Deposits are automatically transferred to subsequent semesters if you renew your housing contract.

Upon terminating your room contract, your deposit will be refunded if all contractual provisions have been met and no room cleaning or damage charges are assessed. The Housing Office and the university reserve the right to deduct from the balance of the deposit other outstanding financial obligations.

Contracts — Room and board contracts are for one semester. Contracts begin officially at 9 a.m. on the opening date.

Contracts may be voided if you don’t maintain full-time academic status (as defined by the Housing Office). You may be released from contracts because of marriage, health reasons or other emergencies deemed appropriate by the director of residence life.

What about Meals?
Dining services on campus are provided for the university by a private contractor. Board programs begin in the Lola Tilly Commons the morning following the official opening, and end on the last day of final exams. During vacation periods, the Commons is closed and limited food service is available at other campus locations on a cash basis.

There are 19 scheduled meals per week (breakfast, lunch and dinner served Monday through Friday and brunch and dinner are served Saturday and Sunday). Three different board plan options are available to students. Full service at 19 meals per week costs $710. You may purchase the 14 meals per week program at $685. The third option costs $800 and includes seven meals per week plus a $200 credit at campus outlets operated by the contractor.

If you don’t live on campus, you may be authorized by the Director of Residence Life to purchase a board program. The cost includes the price of the board program selected plus a board net charge of $410. This additional charge is used to maintain the dining facilities and equipment. Board net costs are paid by residential students as part of their rent.

What Facilities are Available?
Barrett Hall houses 322 male and female students in double and single rooms on eight floors.

Lathrop Hall houses 140 male and female students in double rooms.

McIntosh Hall houses 102 male students in double and single rooms on four floors.

Moore Hall houses up to 322 students in double and single rooms within its eight floors.

Nerland Hall houses 102 male and female students in double and single rooms on four floors.

Skarland Hall houses 138 male and female students in double and single rooms on four floors. Skarland Hall contains rooms on the first floor designed to accommodate mobility impaired students.

Stevens Hall houses 102 male and female students in double and single rooms on four floors.

Wickersham Hall houses 95 female students on three floors in single rooms and suites. The suites consist of two double sleeping rooms, a study and a half-bathroom.

The Student Apartment Complex (SAC) is comprised of 60 two-bedroom apartments accommodating 240 upperclass single students. A board plan is not required for apartment residents. This complex includes six apartments which were designed to accommodate mobility impaired students.

What are the Rooms Like?
Student rooms are equipped with a bed, desk, chair, mirror and closet space for each resident. You’ll need to provide your own bedding (sheets, pillows, blankets), towels and face clothes. Each hall has recreation-lounge and laundry facilities. Regular custodial service is provided in common areas such as corridors, lounges and centrally located bathrooms.
Residence hall students are permitted to remain on campus during the Thanksgiving and spring vacation periods at no additional cost.

What about Room Assignments?
Hall reservations are made based on date of receipt of deposit, provided application and deposit requirements have been completed. You'll be given your room assignment when you arrive.

Current resident graduate and upperclass students are given preference over incoming students for single rooms and apartments. Single room applications are available to juniors, seniors and graduate students after the Housing Office has confirmed the acceptance of housing contracts. Single room applications are due March 1 and December 1 of each year for subsequent semesters.

Student Family Housing
Family housing is provided in several different locations. All have access to free laundry facilities, parking facilities and limited storage space. All apartments are furnished except those at Yak Estates and Garden Apartments.

Residents supply their own personal items including dishes, utensils and bedding.

Who is Eligible?
In general, you must maintain full-time status (12 credits for undergraduate and nine credits for graduate students) to qualify for student housing. Graduate student extended registration is considered for purposes of housing allocation. Eligibility for family housing is contingent upon acceptance as a student at UAF. You should consult the housing staff about regulations concerning maximum terms of occupancy.

How do Students Apply?
Applications for student family housing are mailed upon request by the Housing Office when proof of admission is received. A reservation deposit of $25 is due with the completed application. An additional $50 cleaning/damage deposit is required upon assignment to apartments.

Space is always high demand in student family housing. Apartments are assigned on a first-request basis.

For more information about family housing, write: Housing Office, University of Alaska Fairbanks, Fairbanks, Alaska 99775-0880.

What Facilities are Available?
Garden Apartments houses six married couples or single parents with dependent children in two-bedroom apartments. These apartments are unfurnished.

Harwood Hall houses 36 married student couples without children in 18 efficiency and 18 one-bedroom apartments. All of these apartments are furnished.

Hess Village contains 72 furnished apartments consisting of: 16 one-bedroom; 48 two-bedroom; and eight three-bedroom apartments. These apartments are available for married couples or single parents with dependent children. Apartments are assigned according to family size.

Stuart Hall contains 12 furnished one-bedroom apartments available for married couples without children.

Walsh Hall has 13 one-bedroom furnished apartments occupied by married couples without children.

Yak Estates townhouse apartment complex, located approximately two miles from campus, has 48 two-bedroom and 48 three-bedroom unfurnished apartments. Pets are allowed in this complex.

Annie Pavilla, a freshman majoring in secondary education, studies in the Rural Student Services lounge.
Student Services: Helping You Stay on Track

Academic Advising and Career Development

Academic Advising and the Advising Center

Deciding on a major, choosing electives and planning the classes you take each semester may be the most important decisions you make as a student at the university. Your adviser can help you by explaining programs and requirements, recommending courses and answering your questions. The role of your adviser is to help you choose a program to help you achieve academic and career goals.

If you are a declared major, your adviser will be a faculty member from your academic department.

If you haven’t chosen a major yet, the Fairbanks campus Academic Advising Center is available for students who need help in choosing a major, selecting courses and planning an academic schedule. The Advising Center has general advisers and faculty members from various disciplines throughout campus. You have access to all members of the advising team and department advisers.

In addition to advising incoming freshmen and undeclared students, Advising Center staff are available to help transfer students, international students and rural students.

The Advising Center can also provide information on pre-professional programs.

The Advising Center, in cooperation with other departments, sponsors a variety of workshops on such subjects as course electives and career exploration, as well as a wide range of special topics.

The Advising Center is located on the fifth floor of the Gruening Building, (907) 474-6396.

Alaska Teacher Placement

Alaska Teacher Placement (ATP) is Alaska’s statewide clearinghouse for educational placement. ATP helps Alaska’s public school districts employ educators for their schools.

Educators from Alaska, other states, and around the world register with ATP. When job listings are received at ATP, they are referred to registrants who meet the school districts’ requirements. During the summer, when school district personnel are on campus interviewing educators, registrants often come to Fairbanks to be available for interviews. ATP also sponsors spring and summer education job fairs.

Permanent placement files for UAF education majors are maintained by ATP.

Alaska Teacher Placement is located in the Moore-Bartlett-Skarland Complex, (907) 474-6644.

Career Development Center

If you’re an adult student needing career advice, the Career Development Center can help; the center offers help in making career decisions, designing training programs and developing job search skills. The counselor works with students on career planning, pre-admission advising, program planning, personal crisis intervention and other concerns.

A specialized library of occupational and educational information, a computerized career guidance system, software and individual consultations at various stages of the career development process are available. The center assists students in gaining the information and experience needed for effective career planning, as well as the continuing process of career changes. The goal of the center is to assist students in identifying satisfying career choices based on a realistic assessment of themselves, accurate knowledge of the world of work and experience with ways to activate career plans.

Available both by appointment and on a walk-in basis, these services are free to enrolled and prospective students.

The center is a component of the School of Career and Continuing Education’s Student Development and Learning Center. It is located at the Downtown Center, (907) 451-7223.

Career Services

Whether you’re a freshman or a senior, an important part of your university experience is developing life and career goals. Career Services can help you work out an academic program to enhance your career potential. The Career Services Center provides career counseling, career information, assistance in finding summer employment and academic internships, as well as helping you find professional employment after you graduate.

You are encouraged to use the various job hunting aids available at the center. These include placement files, tips on writing a resume, help in preparing for interviews and information on current job openings. Each year many employers visit the campus to recruit students and alumni. The center coordinates these visits, and every attempt is made to match the employers’ needs with those of students and alumni. Each spring semester, students are assisted in locating summer employment with a variety of employers across the state.

The Career Services Center is located on the fifth floor of the Gruening Building, (907) 474-7596.

Developmental Studies

Developmental studies courses are designed to prepare people for admission to occupational-technical and university-academic programs; help students who are having trouble with courses or want to improve their efficiency; and help people who want to improve their skills but are not necessarily enrolled in a program.

The need for developmental studies is determined by high school transcripts, test scores, other achievement data and discussions with counselors. Students may also elect developmental studies courses based on personal assessment. There are three types of developmental studies courses: communication skills development, math skills development and general academic development. Course descriptions for developmental studies are found under Developmental Studies, English and Mathematics.

International Student Advising

If you’re a UAF student from another country, you may be faced with unique situations which American students don’t usually encounter. You must comply with immigration regulations, adapt to a new and often strange culture, and adjust to the unique characteristics of American higher education. The International Student Adviser serves as a liaison between you and the U.S. Immigration Service, authorizes documents for student visas, helps you adjust to the U.S., Alaska and UAF, and provides counseling for personal and academic problems.

The International Student Adviser is located on the fifth floor of the Gruening Building, (907) 474-7317.
Rural Student Services

Rural Student Services helps rural Alaskans make the transition from a small school and rural environment to university life. New students are offered help with forms and paperwork needed to attend the university, and provided with academic advising, career guidance, personal counseling and student advocacy. The program is geared toward Alaska Native students.

Rural Student Services offers a place for students to seek counseling, information and tutoring, and coordinates services with various university departments. Entering freshmen may use RSS staff members for academic advisement. A lounge is open for students and faculty in which they may relax and visit.

Recruiting activities in rural Alaska, as well as special approaches to better prepare students for college, are an emphasis of Rural Student Services.

Rural Student Services is located on the fifth floor of the Gruening Building, (907) 474-7871.

Student Development and Learning Center

The Student Development and Learning Center provides services that contribute to a successful learning experience or career transition. The center has three components: the Learning Center, career and academic counseling and development, and the SDLC. Services are available by appointment and on a walk-in basis. A series of student success workshops are sponsored by the SDLC on a variety of topics in the areas of study skills, career development and personal development. These workshops are available to students and members of the community at no charge.

The Student Development and Learning Center is located in the UAF Downtown Center, (907) 451-7223.

Tutoring Services

ASUAF Tutoring provides subsidized tutorial services for individual courses on request. Please contact ASUAF (the student government) for more information, (907) 474-7355.

The Learning Resource Center is located at the UAF Downtown Center, with satellite centers at Hutchison Career Center and the UAF Bookstore. The Learning Resource Center provides individualized instruction and tutoring in mathematics, writing, reading, grammar, spelling and study skills. The Learning Resource Center staff helps students identify problem areas and develop personalized study plans. All activities are free and available to all students.

The Math Laboratory provides flexible hour assistance to students enrolled in mathematics courses. The lab is coordinated by students and is available to graduate students. Regular workshops for students with math anxiety are offered. For more information contact the math department, (907) 474-7352.

The Writing Center is staffed by English graduate students and upper class English majors. It is open Monday through Friday and is available to all enrolled students. The staff can help you improve your general grammar usage and writing techniques. They also review student writing projects during the successive draft process. For more information contact the English department, (907) 474-7393.

Veterans’ Training

The university is approved for veterans’ training in degree and certificate programs. Although UAF does not have a veterans’ office on campus, the Office of Admissions and Records can provide general information about educational benefits for veterans. Counseling is available through the Veterans’ Administration. At UAF, veterans class attendance and academic progress are monitored to ensure compliance with VA policies.

Students interested in general information about educational benefits for veterans may contact the UAF Office of Admissions and Records, (907) 474-7821.

Bookstore

The UAF Bookstore provides books and supplies required for course work, but also maintains wide selections of general reading books, college supplies, softs, and general merchandise. The bookstore is located in Constitution Hall, (907) 474-7348.

Disabled Student Services

Curb cuts and ramps have been installed at UAF to make it easier for everyone to traverse the campus. Most campus buildings contain accessible restroom facilities and elevators; the library and museum are accessible and the swimming pool is equipped with a hydraulic lift. Skarland Hall provides special living accommodations and is connected to the dormitories by an indoor concourse.

The University of Alaska Fairbanks is committed to equal opportunity for the disabled. Students with disabilities are encouraged to contact the disabled student services coordinator at the Center for Health and Counseling, (907) 474-7043, or the section 504 coordinator at Disability Services, 101 Eielson Building, (907) 474-7821, as early as possible to get assistance.

The counseling staff provides individual, group and crisis intervention counseling. Psychologists conduct individual counseling by appointment and group counseling is available for people with specific needs. A self-help lab is available to students, and provides information on self-management and self-improvement.

The substance abuse prevention program is administered through the Center for Health and Counseling.

The Center for Health and Counseling is located in the Health, Safety and Security Building, (907) 474-7043.

Orientation Programs

Adult Re-Entry Services

Over the past several years there has been a significant increase nationwide in the number of adult students on college campuses. More than half of UAF’s students are adults who have returned to school. Adult Re-Entry Services offers an orientation for returning students at the start of each fall semester covering topics such as registration, planning class schedules, financial aid and family life.
For information on Adult Re-Entry Services, contact the Career Services, (907) 474-7596.

Early Orientation for New Students (EONS)

Just before registration each semester, Early Orientation for New Students (EONS) is offered to all new students, including freshmen, transfer, graduate, international and exchange students. Information on the program is mailed two months before the semester begins. EONS is designed to acquaint students with university policies, activities, resources, regulations and registration for classes. Attendance at EONS is highly recommended for new students.

For information, contact the Wood Center Student Activities Office, (907) 474-6025.

Wood Center

As a UAF student, you'll become very familiar with UAF's Wood Center. Many campus activities are centered here, as well as the offices of ASUAF, the student government. The center offers a wide range of facilities, services and programs for students, including a games area, photography labs, a pub, a lounge, snack bar and meeting rooms.

Wood Center is a popular gathering place for UAF students.
UAF guard Eric Brown charges the basket for a layup as UAA Seawolves players attempt to block the shot.
ASUAF

The Associated Students of the University of Alaska Fairbanks is the student government, with offices located in the Wood Center. All students who pay the activity fee are members. ASUAF runs service departments and programs dedicated to making the lives of UAF students easier and more convenient. ASUAF represents UAF students to the university administration and the Alaska Legislature. ASUAF officers are elected by the student body. For information, contact the ASUAF Office, (907) 474-7355.

Academic Computing

Academic Computing is UAF's student resource for computing facilities. The staff provide consulting services, access to documentation, seminars and classes, and acts as a "one stop" source for all academic user help. Academic Computing supports several hundred terminals and microcomputers installed on the UAF campus. Dial-up ports are used by many students to access the systems from their homes and each residence hall is equipped with at least one terminal for student use.

Primary academic computing support for UAF is provided through a Digital Equipment Corporation VAX 8600. This system is currently configured with 128 megabytes of main memory, 3.8 gigabytes of disc storage, 128 user-accessible ports, and the VMS operating system. Similar VAX systems are located at the university's Juneau and Anchorage locations, and are accessible through the UACN multiplexing and DEGNET data communication facilities. The VAX 8600 is also connected to both BITNET and NorthWestNet, facilitating data transfer with several thousand other academic and research computers worldwide.

Various academic and research departments on campus have both mini- and microcomputers for research and instruction. There are also numerous microcomputer systems available for student use.

Academic Computing is located in the Rasmuson Library all hours study area; phone (907) 474-7191.

Alumni Relations

The UAF Alumni Association is an active part of the UAF campus. Alumni support athletics and other student activities by contributions of time and money. The UAFAA provides assistance to the university and its students and faculty.

The Alumni Relations office is located in 201 Constitution Hall, (907) 474-7081.

Athletics and Recreation

Facilities

The Patty Center includes a main gymnasium (basketball, volleyball, badminton) seating 2,100, a universal weight training room, a free-weight room, two handball/racquetball courts, a swimming pool, a shooting range, a 1,200-seat arena for ice skating and hockey, and men's and women's locker/shower/sauna rooms. A soccer and softball field is adjacent to the center, and the campus has many miles of cross-country trails for running and skiing, including a lighted ski trail.

Intercollegiate Athletics

The UAF Nanooks intercollegiate athletic teams participate at the Division II level in men's and women's basketball, men's and women's cross-country skiing, running, co-ed rifle and women's volleyball. The men's ice hockey team participates at the Division I level. Students who are interested in trying out for any of these teams should contact the appropriate coach.

For information on athletics and recreation, call (907) 474-7305.

Intramural Sports

Intramural activities allow you to spend your leisure time in organized recreational activities. Students, faculty and staff of all skill levels may participate. The intramural program offers activities for men and women in more than 35 team and individual competitions each year.

Continuing Education

UAF's School of Career and Continuing Education responds to individual and community needs for innovative training and high quality continuing education programs. Academic short courses and non-credit workshops are designed to meet the needs of practitioners in the trades or professions. SCCE provides in-service training for teachers, supervisory skill seminars for local businesses and agencies, and general programs for cultural enrichment.

The School of Career and Continuing Education, in conjunction with other UAF colleges and schools, provides academic courses during evening hours and on weekends on the Fairbanks campus and at its off-campus locations. The alternative course schedules and delivery modes are designed to increase access for working adults and other students whose work, community, or family commitments preclude their participation in resident semester-based programs. Some courses are enhanced through television instruction or computer programs to permit students to progress at their own pace. Night and weekend courses are offered to allow the student working toward a Bachelor of Business Administration degree in UAF's School of Management or to fulfill general university requirements for the Bachelor of Arts degree. SCCE also serves the non-degree seeking student with evening courses for general interest.

For information, contact the School of Career and Continuing Education at the UAF Downtown Center, (907) 451-7223.

Exchange Programs in the U.S. and Abroad

Study Abroad Programs

Study abroad programs can broaden your view of the world while contributing academic credit toward your degree at UAF. In a study abroad experience you can master a foreign language, explore new lands and learn about other cultures. Study abroad has an important role to play in the larger process of educating citizens with global awareness, as well as preparing graduates of the university for many career opportunities that involve international affairs. There is no better time to live abroad than when you are a student, and students are encouraged to begin to plan for a study abroad experience early in
their careers at UAF, particularly since prior study of the language is often required.

In study abroad programs students enroll full time at UAF while attending school abroad; thus, you may use your Alaska Student Loan and many other forms of financial aid to study abroad. All credits are UAF credits, so no transfer of credits is required. Students are responsible for their transportation to the site, housing, food and incidental expenses at the host institution. UAF study abroad programs are extremely economical compared to other similar programs.

Study abroad programs are administered by the UAF International Programs Council. The council's objective is to develop study abroad programs to support each of the foreign languages offered at UAF. The International Programs Office (202 Eielson Building, (907) 474-5327) exists to encourage and assist you in arranging a study abroad experience.

Nagoya Gakuen University, Japan — NGU is a small, private university located on the main Japanese island of Honshu, near Nagoya, the third largest city in Japan. NGU has emphasized business education, but recently expanded to include a foreign languages program of study. They offer a well-structured course of study in Japanese language and culture. One year of Japanese is prerequisite, and two years is strongly recommended. Exchange students reside in a new international students' dormitory.

Hokkaido University, Japan — Hokkaido is a national university in Sapporo, on the northern island of Hokkaido. Graduate students with advanced Japanese language ability will find especially good opportunities in fisheries and marine biology, anthropology and linguistics. Mombusho Fellowships, supported by the Japanese government, are available through a competitive program. Both undergraduate and graduate students may participate in a small but growing Japanese language program. Home stays are arranged for exchange students.

Soong Sil University, Korea — The campus of Soong Sil University is in Seoul, the capital and largest city of the Republic of Korea. The university started as Soong Sil College in Pyongyang, North Korea, in 1897. It was founded as the first Christian school in Korea by Dr. William Baird, an American missionary. Soong Sil is a comprehensive private university of 8,000 undergraduate and graduate students, offering a wide array of courses of study. At least one year of study of Korean is required. Exchange students may reside in a newly constructed international house or may request to stay with a host family.

University of Copenhagen, Denmark — The University of Copenhagen, founded in 1479, is a modern, comprehensive university steeped in old world tradition. University buildings are spread about one of Europe's most beautiful cities. Courses are offered at both undergraduate and graduate level in theology, medicine, social sciences, humanities and natural sciences. The language of instruction is Danish; a year of study of Danish at UAF is a prerequisite, and two years is recommended. Intensive Danish classes are arranged in Copenhagen as well.

McGill University, Canada — McGill University is an English-speaking university located in bilingual (French and English) Montreal, the largest city in the province of Quebec. Students can practice their French in the community while taking courses in English. There is no language requirement for the McGill University exchange. Students develop a plan of study to submit to the proposed host department at McGill, and work closely with a McGill faculty adviser. McGill has a particularly strong Northern Studies program. Most students rent apartments in the community.

Study in Europe — UAF belongs to NICSA (the Northwest Inter-institutional Council on Study Abroad), a consortium of colleges and universities in the Pacific Northwest that pool their resources to provide study abroad programs in Europe at modest cost. NICSA programs offer three terms per year (September through December, January through March, and April through June); students may elect to attend successive terms at the same or different sites. A comprehensive fee of approximately $4,600 per term covers tuition, room and board, textbooks, and excursions integrated with the courses. Intensive language study is offered (except in London), as well as content courses, primarily in the social sciences and humanities, taught in English. Home stays offer a chance to practice the language and experience the everyday culture of the country.


Cologne, Germany — One of the great cities of the Rhineland, in western Germany, Cologne dates back to 50 B.C., when it was established as a Roman colony. The Cologne program operates for the spring term only (April through June). One semester-long in the lecture halls of a university. These opportunities include smaller classes, direct contact with top
faculty members and greater curriculum flexibility which allows students to strike out on their own in intellectual pursuits. The Honors Program is based on the conviction that genuine excellence in college-level studies means broad competence in areas outside a student’s major field of specialization as well as excellence within it.

Eligibility
Undergraduate students from all disciplines are eligible for admission to the Honors Program. To qualify, new freshmen must have attained a high school grade point average of no less than 3.50, a composite ACT score of no less than 27, and no individual ACT score of less than 23. Sophomores applying to the program must have a cumulative college GPA of 3.50 and clear admission to UAF.

Admission to the Honors Program is generally in the fall semester. Applications on file by April 1 of the year applying. Late applications will be considered on a space available basis. A limited number of students may be accepted at mid-year. Credentials for admission to the university must be filed separately and should be forwarded to the Office of Admissions and Records at the time of application to the Honors Program.

Program Features
Students in the program must be regularly enrolled full-time undergraduate students. In order to graduate with the designation of "Graduation with University Honors," students must complete 27 credits of Honors work plus a senior Honors thesis.

Honors courses are offered in all disciplines and include courses specifically designed for the Honors Program as well as special enrichment sections of standard university courses. The Honors Program also offers opportunities for students to do individualized study in their majors.

A typical semester’s offering in the Honors Program would include two sciences, a calculus course, English composition, two or more courses from the social sciences and humanities plus one or more courses from business, engineering science, education, etc.

A summer honors research course is offered each year.

For more information and application forms, contact: The Honors Program, Box 900120, University of Alaska Fairbanks, Fairbanks, Alaska 99775, or call the Honors House, 515 Copper Lane, (907) 474-6612.

Library
The Elmer E. Rasmuson Library is the largest in the state, with more than 1.5 million volumes. In addition to its size, the library provides electronic access to its collections via Gnosis, its on-line catalog: ElmerNet, its on-line index to periodicals; and on-line searching.

Gnosis serves as the library’s on-line catalog, and as the library’s circulation system. Gnosis can be searched by author, title, subject, call number or keyword via terminals in the library building or through any terminal connected to UACN, the university’s computer network. Students outside the library and UACN can dial into Gnosis with a computer and modem. Students can obtain a Gnosis card, which gives them library borrowing privileges, at the distribution counter on Level 4.

ElmerNet contains LaserCat, a database which provides access to more than 3.2 million titles held by more than 400 libraries in the western United States. In addition to LaserCat, ElmerNet carries indexes to the periodical literature covering such fields as general periodicals, management, literature, education, engineering and the biological sciences. The network contains more than 10 million citations. Interlibrary loan services allow UAF students to borrow, at no charge, books and periodicals owned by other libraries.

When needed information is not found on Gnosis, ElmerNet or LaserCat, the library offers on-line searching of databases available nationally and internationally. There is a small fee for on-line searching services.

An experienced and highly qualified reference staff provide assistance to students. A library orientation course (LS 101) teaches students how to conduct library research and use library resources.

Collections contained in the library include the world-class Alaska and Polar Regions Collections, covering books, periodicals, archives, manuscripts, historical photographs, oral histories and maps. The Rasmuson Library is also a Federal depository, receiving 80 percent of the materials published by the U.S. Government Printing Office.

The Fairbanks node of the University of Alaska Computer Network (UACN) is located in the library. A variety of personal computers and software is available for use by students, as well as typewriters and calculators. A study area is open 23 hours a day year round.

The Bio-Medical Library, located in the Arctic Health Research Building on the West Ridge, is a branch of the Rasmuson Library. Collections in the Bio-Medical Library number approximately 36,000 volumes, the majority of which are periodicals.

For further information, contact the Rasmuson Library director’s office at (907) 474-7224.

Museum
While some 100,000 people visit the University of Alaska Museum each year, the museum is more than a place to look at interesting objects. The museum is also a campus resource and research center, and the staff conducts field work, teaches university courses and publishes reports.

Resources at the museum include the aquatic collection, the archaeological collection, the ethnographic collection, the art collection, the herbarium, the geology collection, the Tephrochronology Center, the terrestrial vertebrate collection, the Alaska Native Heritage Film Project and the Alaska Quaternary Center.

Objects from the collections are used for demonstration and comparative studies in classrooms and laboratories. For information, contact the University of Alaska Museum, (907) 474-7505.

Summer Sessions
A wide variety of academic opportunities are offered to residents and visitors during the summer. Courses are open to undergraduate and graduate students seeking degrees as well as to non-degree students with special interests. Students may choose from teacher training and enhancement courses, cross-cultural and arctic studies, intensive foreign language courses, and field experiences in areas such as archaeology, biology, geology and marine science. Additionally, basic degree requirements and courses heavily enrolled in during the fall and spring semesters are often available.

Summer Sessions faculty include members of the regular teaching staff, supplemented by outstanding visiting instructors. For more information contact Summer Sessions, 2nd Floor Signers’ Hall, (907) 474-7021.
Mechanical engineering graduate student Lu Xiancheng adjusts the solar tracking device he built as an undergraduate.

School of Fisheries and Ocean Sciences graduate student Thomas Ostholt works at the Seward Marine Center.
Programs of Study

As a comprehensive land-grant and sea-grant institution, UAF offers graduate degrees in a wide range of academic disciplines. UAF is an exceptional institution in areas related to our unique location. The expertise of UAF scientists and scholars is anchored along the northern edge of the Pacific Rim and extends around the circumpolar north. Although UAF is a small and young institution, it maintains a standing among the top 100 universities in the country in terms of total expenditures for research.

UAF is the only doctoral-granting institution in the state, and doctoral programs are offered in the areas of anthropology, atmospheric sciences, biochemistry/molecular biology, biology, geology, geophysics, mathematics, oceanography, physics, space physics and wildlife management. Master's degrees are offered in over 50 fields: in the humanities, social sciences, computer science, physical and natural sciences, and in professional fields such as engineering, education, and business administration. Interdisciplinary programs are possible for exceptional students who have a research focus in areas in which UAF has faculty expertise and research facilities. See the list of graduate degrees on the following page, and consult the UAF Graduate Catalog for details on graduate degree programs.

Financial Aid

Teaching and research assistantships of $7,600 to $8,360 for the school year are available through departments, and assistantships are sometimes available for summer. Full tuition is waived for graduate assistants. The Financial Aid office oversees student loans and work-study programs, and the University of Alaska Foundation administers scholarship programs. The application deadline for financial aid is February 15 for the fall semester, and many departments make assistantship decisions early in the spring. Contact the department or program in which you are interested, for deadline dates and required application information.

Cost of Living

Campus housing available to graduate students includes residence hall accommodations ($590 to $780 per semester) and family housing apartments ($260 to $480 per month); housing scholarships may be available. The cost of living in the Fairbanks area is generally higher than the national average.

Student Group

There are about 600 graduate students at UAF. Forty percent of the graduate students at UAF are women, and about 55 percent attend part time. Graduate students are enrolled from 30 states and more than 20 foreign countries.

Admission to Graduate Study

Admission to graduate degree programs is open to persons holding bachelor's degrees from accredited institutions who have at least 3.0 (B) averages in their majors and the majors are deemed suitable for continuation of studies in the fields of choice. Equivalent accomplishments at a foreign university may be substituted. For the purposes of admission to graduate study, all grades, including those generated from retaking a course, are included in calculating the grade point average. Many degree programs require GRE or GMAT tests. All applicants must submit (or arrange to have sent) to the Office of Admissions and Records: graduate application for admission, cover letter indicating area of interest, nonrefundable $30 application fee, three letters of reference, and official transcripts from each college or university attended. Interdisciplinary applicants should contact the Graduate School office for information on application requirements.

Graduate students should apply for admission at least six to nine months before the beginning of the semester in which they plan to enroll. Applications for housing may not be made until after the student has been accepted to a degree program. Qualified applicants can be accepted for admission while enrolled in their last semester of college. However, the acceptance may be conditional upon receipt of official transcripts indicating satisfactory completion of the work in progress at the time of acceptance and completion of graduation requirements. Final acceptance to the university for the purpose of earning scholar credit becomes complete only when all credentials have been received and accepted by the Director of Admissions and Records.

Permission to enroll in graduate courses does not imply admission to graduate study. A student may not presume that such course work will necessarily be applicable to a graduate program.

Specialized Programs

The Western Interstate Commission for Higher Education (WICHE) has selected UAF arctic, circumpolar and cold regions studies as part of the unique or specialized graduate programs it coordinates in the western states as the Western Regional Graduate Programs. Residents of Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington and Wyoming, who major in one of these programs, pay resident tuition at UAF. The programs included are: anthropology, arctic engineering, atmospheric sciences, biology, botany, fisheries, geology, geophysics, marine biology, mining engineering, natural resources management, oceanography, space physics, wildlife management and zoology.

Correspondence and Information

For copies of the Graduate Catalog and graduate application: Office of Admissions and Records (907) 474-7822 102 Signers' Hall University of Alaska Fairbanks Fairbanks, AK 99775-0060

For general information and interdisciplinary application procedures: Graduate School (907) 474-7464 305 Signers' Hall University of Alaska Fairbanks Fairbanks, AK 99775-0820

For fellowship information: University of Alaska Foundation (907) 474-7687 910 Yukon Drive University of Alaska Fairbanks Fairbanks, AK 99775-5240

For financial aid information: Financial Aid Office (907) 474-7256 5th Floor, Gruening Building University of Alaska Fairbanks Fairbanks, AK 99775-0770
Graduate Degree Programs

E.M.—Engineer of Mines
M.A.—Master of Arts
M.F.A.—Master of Fine Arts
M.S.—Master of Science
M.A.T.—Master of Arts in Teaching
M.B.A.—Master of Business Administration
M.C.E.—Master of Civil Engineering
M.Ed.—Master of Education
M.E.E.—Master of Electrical Engineering
Ph.D.—Doctor of Philosophy

Anthropology
M.A. Anthropology*
Ph.D. Anthropology*

Behavioral Sciences/Human Services
M.A. Community Psychology
M.Ed. Guidance/Counseling (elementary or secondary)

Biology and Wildlife
M.S. Biology*
M.S. Botany*
M.S. Wildlife Management*
M.S. Zoology
M.A.T. Biology
Ph.D. Biological Sciences*

Business Administration
M.B.A.*

Chemistry
M.A. Chemistry*
M.S. Chemistry*
M.A.T. Chemistry
Ph.D. Biochemistry/Molecular Biology*

Civil Engineering
M.C.E.
M.S. Civil Engineering
M.S. Arctic Engineering
M.S. Environmental Quality Engineering
M.S. Environmental Quality Science

Economics
M.S. Resource Economics*

Education
M.Ed. Cross-Cultural Education
M.Ed. Curriculum and Instruction
M.Ed. Educational Leadership
M.Ed. Language and Literacy

Electrical Engineering
M.E.E.
M.S. Electrical Engineering

Engineering and Science Management
M.S. Engineering Management
M.S. Science Management

English
M.A. English*
M.A. Professional Writing*
M.F.A. Creative Writing*

Geology and Geophysics
M.S. Geology*
M.S. Geophysics*
M.A.T. Geology*
Ph.D. Geology*
Ph.D. Geophysics*

History
M.A.T. History

Interdisciplinary Studies
M.A.*
M.S.*
Ph.D.*
M.A. Northern Studies

Marine Science and Limnology
M.S. Marine Biology*
M.S. Fisheries*
M.S. Oceanography*
Ph.D. Oceanography*

Mathematical Sciences
M.S. Computer Science
M.S. Math*
M.A.T. Math*
Ph.D. Math*

Mechanical Engineering
M.S. Mechanical Engineering

Mining and Geological Engineering
M.S. Geological Engineering
M.S. Mining Engineering
M.S. Mineral Preparation Engineering
Engineer of Mines

Music
M.A. Music
M.A.T. Music

Natural Resources Management
M.S. Natural Resource Management*

Petroleum Engineering
M.S. Petroleum Engineering

Physics
M.S. Physics*
M.S. Space Physics*
M.S. Atmospheric Science*
M.A.T. Physics*
Ph.D. Physics*
Ph.D. Space Physics*
Ph.D. Atmospheric Science*

* GRE required for admission
** GMAT required for admission
The research programs at UAF take advantage of the university's unique location in the subarctic of interior Alaska, with easy access to the Pacific Ocean, the Arctic Ocean, glaciers and permafrost areas. In addition to research carried out in its academic departments, the university has a number of research centers that focus upon problems of the Arctic. These include the environmental impact of human activities, the development of renewable and non-renewable resources, energy sources and the cultural understanding and preservation of peoples of the North.

While most student research is provided by graduate students, UAF does provide opportunities for some undergraduate students to participate in basic and applied research. Several departments have summer undergraduate research programs. Contact the Chemistry Department and the Physics Department for information.

UAF's researchers are among the best. To cite but a few recent accomplishments:

- Scientists at the Institute of Arctic Biology discovered "supercooling" in arctic ground squirrels. Understanding the mechanisms the animals use to hibernate at below-freezing body-temperature could have a major impact on the practice of human medicine.
- When the Exxon Valdez ran aground in Prince William Sound in March 1989, scientists from UAF were called upon to help. Institute of Marine Science researchers helped predict the movement of the oil; the Institute of Arctic Biology was named UAF's coordinating agency for analysis of the spill's biological impact; and the Geophysical Institute research used satellite data to map the movement of the spill.
- When Mt. Redoubt and Mt. Augustine erupted in recent years, the Alaska Volcano Observatory, of which UAF is a major member, predicted the explosions. The timely information saved millions of dollars by early warnings to the business, industrial and military sectors, and may save lives in the event of a future catastrophic eruption.
- This past year, joint research was initiated by UAF agricultural scientists and researchers in the Soviet Union. Scientists will conduct parallel studies at similar latitudes and climatic conditions and compare results.
- UAF researchers developed a brucellosis vaccine that saves reindeer calves, and benefits reindeer herders across northern Alaska.
- As of January 1989, the Polar Ice Coring Office (PICO) was officially moved to UAF. PICO is supported by the National Science Foundation and provides logistical support and coordination on federally support ice coring projects. With PICO support, Geophysical Institute scientists in Greenland succeeded in drilling the deepest-ever glacial borehole using a hot-water drilling technique.
- The Arctic National Wildlife Refuge is a prime area for caribou, and perhaps for oil development. University studies have provided decision-makers with essential information on the area.
- A UAF scientist was awarded a Fulbright Scholarship to study and teach Native languages in the Soviet Union.
- UAF's Mineral Industry Research Laboratory investigates a process that has the potential to substantially reduce the cost of recovering valuable minerals from Alaskan ores.

Institutes, Stations and Centers

Agricultural and Forestry Experiment Station

AFES research increases the efficiency of production of food and wood products, and helps Alaska wisely use its land for agriculture, forestry and recreation.

Alaska Cooperative Fishery and Wildlife Research Units

Emphasis of the fishery unit is on the ecology and fisheries of aquatic ecosystems. The wildlife unit focuses on seabird ecology, wildlife population dynamics and the environmental impact of human activity.

Alaska Native Language Center

The center documents and promotes the use of the Indian and Eskimo languages of Alaska.

Center for Cross-Cultural Studies

This center undertakes research to develop the human resources of Alaska's multicultural society.

Fishery Industrial Technology Center

Located in Kodiak, the center lends scientific and technical expertise to the harvesting, processing and marketing efforts of the fishing industry.

Geophysical Institute

GI focuses on high-latitude geophysical phenomena in space physics, aeronomy, atmospheric sciences, solid earth research and ice physics.

Institute of Arctic Biology

IAB studies focus on the adaptation of plants, animals and humans to past and present climates in the Arctic.

Institute of Marine Science

IMS has research programs in biological, chemical, fisheries and physical oceanography.

Institute of Northern Engineering

INE focuses on solving the unique engineering and water-related problems in Alaska and other northern regions.

Juneau Center for Fisheries and Ocean Sciences

The center focuses on research on the life history, pathology and management of marine fish and invertebrates.

Mineral Industry Research Laboratory

MIRL conducts basic and applied research to aid in the development of Alaska’s mineral and energy resources.

Petroleum Development Laboratory

PDL works to develop technology to maximize the recovery of Alaska’s petroleum and natural gas resources.

University of Alaska Museum

The major objective of the museum is the continuing development of systematic collections that are available for research and educational purposes.
Associate Professor Tom Wells lectures a physical education class.

Associate Professor Karen Colligan-Taylor and students in her Japanese class discuss the day's activities in Japanese.
Three colleges and six schools offer degrees in more than 70 fields of study with a host of options within many of the degree programs, as well as a wide range of technical/vocational programs.

UAF offers certificate, associate and baccalaureate and master’s degree programs in the arts, sciences and professions, as well as selected doctoral programs in areas of particular strength, such as the sciences and mathematics. The following is a list of UAF’s colleges and schools and their undergraduate offerings.

Colleges

Liberal Arts, College of

The College of Liberal Arts provides a broad liberal arts education to UAF students whatever their specialization. The college includes disciplines in the social sciences, humanities, performing arts and mathematical sciences, as well as professional programs in journalism and broadcasting, and physical education. Its courses also emphasize writing, oral communication and mathematics skills, and foster an appreciation for the arts through active programs in visual art, music and theater. The College of Liberal Arts provides a variety of courses to satisfy core curriculum requirements for students, and aims to increase its national and international reputation in northern studies. In addition, it offers a growing number of courses in Asian languages in response to increased demand recognizing Alaska’s present and future business relations with the Asian Pacific Rim. The college sponsors the Alaska Living History series which brings men and women to the campus who have helped shape the state of Alaska. The college includes the departments of Alaska Native languages, anthropology, art, English, foreign languages and literatures, geography, history, journalism and broadcasting, library science, linguistics, mathematical sciences, military science, music, philosophy and humanities, physical education, political science/ju- stice, speech communication and theater.

Natural Sciences, College of

Students in the College of Natural Sciences have one of the most exciting natural laboratories in which to learn. CNS has undergraduate programs in biology, geology, chemistry, physics and wildlife management, all of which offer research opportunities. The college also offers two interdisciplinary programs, in earth sciences and general sciences, intended especially for those seeking teaching certificates. The College of Natural Sciences also provides students with a variety of courses to satisfy science requirements for graduation. The research institutes associated with the college—the Geophysical Institute, the Institute of Arctic Biology and the Alaska Cooperative Wildlife Research Unit—are nationally and internationally recognized. CNS includes the departments of biology and wildlife, chemistry, geology and geophysics, and physics. In addition, the University of Alaska Museum is an integral part of the college, providing instructional, research and public service opportunities for students, faculty and the general public.

College of Rural Alaska

The College of Rural Alaska gives particular consideration to Alaska’s rural residents and students in non-traditional settings. This college offers programs in the behavioral sciences, social work and education. Alaskan trained teachers and social workers are in demand in Alaska, and these programs are nationally accredited. The college has branch campuses in Bethel, Dillingham, Kotzebue and Nome, and has centers throughout the state, extending from Barrow to the Aleutians. The college is a center for the development and support of distance delivery and field-based degree and non-degree course work throughout the university. The five departments of behavioral sciences and human services, education, general studies, rural development, and vocational/technical education, all work to prepare students to be more sensitive to cross-cultural settings and diversity. Research and development activities involving issues associated with rural Alaska are supported and administered through the Center for Cross-Cultural Studies.

Schools

Agriculture and Land Resources Management, School of

Undergraduate programs at the School of Agriculture and Land Resources Management lead to a Bachelor of Science degree in natural resources management, with options in natural resources, forestry and agriculture. Research is conducted through the Agricultural and Forestry Experiment Station, with facilities in Fairbanks and Palmer, and through the Forest Soil Laboratory in Fairbanks. SALRM’s courses and programs were developed in close cooperation with many university units and local, state and federal agencies and groups. Through these cooperative arrangements, students are provided with many opportunities for field work and/or internships in the management degree options listed above, as well as in the areas of outdoor recreation, water resources management, park and wilderness management, and research planning and administration.

Career and Continuing Education, School of

The School of Career and Continuing Education provides general education at the certificate and associate degree levels, as well as vocational/technical training. The school also coordinates the many opportunities for continuing education designed to meet individual, professional and community instructional needs and special interests. The school also offers special services for underprepared students and mature adults returning to college in an evening or weekend setting. SCCE offers certificate and associate degree programs in a variety of fields. The school links university resources to local, community and social development concerns.

Engineering, School of

The School of Engineering offers courses of study leading to the Bachelor of Science degree in civil, electrical or mechanical engineering. The three undergraduate SOE programs are nationally accredited, and because of this accreditation and program emphasis on northern engineering problems and principles, engineering graduates are in demand within and outside the state of Alaska. Building upon required course work in mathematics, chemistry and physics, engineering majors study engineering principles and select an area of specialization and development skills in creative design and analysis through simulated projects. Computers, from sophisticated PCs to extensive mainframes, are an integral part of the UAF engineering program.
Fisheries and Ocean Sciences, School of

Vera Alexander, Dean

The School of Fisheries and Ocean Sciences offers the Bachelor of Science degree in fisheries science at the Fairbanks campus and the UAF Juneau Center for Fisheries and Ocean Sciences. Created in 1987, the school is responsible for coordinating the university's statewide programs involved with education, research, development of applied technology and extension of knowledge to the public concerning Alaska's vast fisheries and marine resources. Majors in the school are well-prepared for graduate study or to enter management, law enforcement and/or public information-education fields related to fisheries and often are able to find summer field work opportunities through cooperating state and federal agencies.

Juneau students should also check the University of Alaska Southeast catalog.

Management, School of

Michael L. Rice, Dean

School of Management undergraduate programs in economics, accounting and business administration provide the foundation for professional careers in private and public organizations of all sizes. The school's objective is to prepare literate, articulate and broadly educated business specialists who are sensitive to interpersonal relationships and the dignity of the individual. The Bachelor of Business Administration and the Master of Business Administration degree programs are nationally accredited and place UAF among 77 of 1,200 schools across the nation with similar accreditation. All of the degree programs emphasize problems and circumstances unique to Alaska, including entrepreneurship, venture management, international business, regional economic development, regulation, financial institutions and markets, transportation, natural resource economics, travel industry management and a comprehensive professional program in accounting.

Mineral Engineering, School of

Russell J. Ostermann, Acting Dean

The emphasis of the School of Mineral Engineering is on engineering as it applies to the exploration and development of mineral and energy resources. Petroleum engineering is offered through SME and is the only such program in the state. The geological and mining programs are nationally accredited and the emphasis in all programs is to train undergraduate and graduate students to be tomorrow's leaders in the industry. The school includes two research laboratories, the Mineral Industry Research Laboratory and the Petroleum Development Laboratory, as well as the statewide mining extension program.

Thom B. Le, Karen Nitson and Lucy Hernandez take advantage of the School of Management's new computer laboratory.
Degrees and Programs

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<thead>
<tr>
<th>Degree Program</th>
<th>Description</th>
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<tbody>
<tr>
<td>Earth Science, B.A.</td>
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<tr>
<td>Economics, B.A., B.B.A.</td>
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<tr>
<td>Education, B.Ed.</td>
<td>Elementary Secondary (X-CED only)</td>
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<tr>
<td>Music Education, M.Ed.</td>
<td>Language and Literacy Distance Education</td>
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<tr>
<td>Electrical Engineering, B.S., M.S.</td>
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<tr>
<td>English, B.A.</td>
<td>Forms and Techniques of Literature Teaching</td>
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<tr>
<td>English, M.A., M.F.A.</td>
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<tr>
<td>Professional Writing, M.A.</td>
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<td>Environmental Quality Engineering, M.S.</td>
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<td>Environmental Quality Science, M.S.</td>
<td>Eskimo, B.A.</td>
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<td>Fish, B.S.</td>
<td>Inupiak Eskimo Yupik Eskimo</td>
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<td>Fisheries Science, M.S.</td>
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<tr>
<td>Forestry (Cooperative)</td>
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<td>Forestry, B.S.</td>
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<tr>
<td>Fisheries, B.S.</td>
<td>Research</td>
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<tr>
<td>Fisheries Management</td>
<td></td>
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<tr>
<td>Food Science and Technology (Cooperative)</td>
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<tr>
<td>Foreign Languages, B.A.</td>
<td>French German Russian Spanish</td>
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<tr>
<td>Forestry (Cooperative)</td>
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<tr>
<td>General Science, B.S., M.S.</td>
<td></td>
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<tr>
<td>Geography, B.A., B.S.</td>
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<tr>
<td>History, B.A., M.A.T.</td>
<td>Humanities, B.A.</td>
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<tr>
<td>Human Services, B.A.</td>
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<td>Human Services Technology, A.A.S.</td>
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<tr>
<td>Interdisciplinary Studies Option, A.A.S., B.A., B.S., B.T., M.A., M.S., Ph.D.</td>
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<tr>
<td>Journalism, B.A.</td>
<td>Broadcast</td>
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<tr>
<td>Natural Resources Management, B.S.</td>
<td>Agriculture Forestry</td>
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<tr>
<td>Natural Resources Management, M.S.</td>
<td>Northern Studies, B.A., M.A. Nursing (Cooperative)</td>
</tr>
<tr>
<td>Petroleum Engineering, B.S., M.S.</td>
<td>Philosophy, B.A.</td>
</tr>
<tr>
<td>Physics, B.A., B.S., M.S., M.A.T., Ph.D.</td>
<td>Political Science, B.A. Psychology, B.A., B.S.</td>
</tr>
<tr>
<td>Resource Economics, M.S.</td>
<td>Rural Development, B.A.</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Applied Land Management Community Organizations and Services Community Research and Cultural Documentation Local Government Administration Village Corporation Management Russian Studies, B.A.</td>
</tr>
<tr>
<td>Science Management, M.S.</td>
<td>Social Work, B.A. Sociology, B.A., B.S.</td>
</tr>
<tr>
<td>Space Physics, M.S., Ph.D.</td>
<td>Speech Communication, B.A. Statistics, B.S.</td>
</tr>
<tr>
<td>Wildlife Management, B.S.</td>
<td>Theater, B.A. Veterinary Medicine (Pre-Professional)</td>
</tr>
<tr>
<td>Wildlife Management, B.S.</td>
<td>Wildlife Management, B.S. Zoology, M.S.</td>
</tr>
</tbody>
</table>
Accounting

School of Management
Department of Accounting and Information Systems

Degree: B.B.A.
Minimum Requirements for Degree: 130 credits

The accounting department offers an extensive program for those interested in the fields of general accounting, auditing, managerial accounting, and taxation. 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.

Requirements

Accounting — B.B.A. Degree
1. Complete general university requirements and B.B.A. degree requirements. (As part of core, complete PHIL 322-Ethics.)
2. Complete the following requirements:
   - ENGL 314 — Technical Writing
   - Upper division Economics elective (Other than ECON 324 or ECON 350)
   - ACCT 101, 102 — Elementary Accounting
   - ACCT 316 — Acct. Information Systems
   - BA 325 — Financial Management
   - BA 330 — Legal Environment of Business
   - BA 333 — Principles of Marketing
   - BA 360 — Production/Operations Management
   - BA 390 — Organizational Theory and Behavior
   - BA 462 — Administrative Policy
   - ECON 324 — Intermediate Macroeconomics
   - ECON 350 — Money & Banking
   - ACCT 452 — Auditing
   - ACCT 403 — Advanced Taxes
   - ACCT 404 — Advanced Cost Accounting and Controllership
   - ACCT 405 — Contemporary Issues in Accounting
   - ACCT 471 — Computer Control and Adv. Auditing
   - ACCT 473 — Applied Systems Design

3. Complete the following major complex requirements:
   - ACCT 303 — Governmental Accounting
   - ACCT 310 — Income Tax
   - ACCT 342 — Managerial Cost Accounting
   - ACCT 361, 362 — Intermediate Accounting
   - ACCT 401 — Advanced and International Accounting
   - ACCT 452 — Auditing
   - ACCT 403 — Advanced Taxes
   - ACCT 404 — Advanced Cost Accounting and Controllership
   - ACCT 405 — Contemporary Issues in Accounting
   - ACCT 471 — Computer Control and Adv. Auditing
   - ACCT 473 — Applied Systems Design

4. Complete the following major complex requirements:
   - ACCT 361, 362 — Intermediate Accounting
   - ACCT 401 — Advanced and International Accounting
   - ACCT 452 — Auditing
   - ACCT 403 — Advanced Taxes
   - ACCT 404 — Advanced Cost Accounting and Controllership
   - ACCT 405 — Contemporary Issues in Accounting
   - ACCT 471 — Computer Control and Adv. Auditing
   - ACCT 473 — Applied Systems Design

5. Complete a minor complex (optional) or free electives 12-15
   (At least 11 credits must be outside the School of Management with the exception of introductory computer literacy credits. The minor may not be from the School of Management.)

6. Minimum credits required: 130

Airframe and Powerplant

School of Career and Continuing Education
Trade and Industry Department

Certificate; Degree: A.A.S.
Minimum Requirements for Degree — 64 credits; for Certificate — 30 credits

The airframe and powerplant department offers an associate of applied science degree (A.A.S.) and three certificate programs. Students may choose to earn a certificate in airframe, powerplant, or airframe and powerplant. Admission to this program is at the discretion of the program faculty and requires an interview with the faculty adviser.

Students may elect to complete the associate degree program in airframe and powerplant. In order to enhance employability, students are encouraged to complete the associate degree program.

Requirements

Airframe and Powerplant — A.A.S. Degree
1. Complete the following general university and A.A.S. requirements:
   - Communications
     - ENGL 111X and ENGL 211X, 212X, or 213X
     - SPCH 131X or 141X
   - Mathematics or Natural Science
     - A math or natural science course at the 100 level or above
   - Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition

2. Complete the following major degree requirements:
   - Same as Airframe and Powerplant Certificate Program

3. Degree Total: 64

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Airframe and Powerplant — Certificate

The airframe and powerplant mechanics certificate program allows students to complete requirements for the Federal Aviation Administration mechanics certificate with both airframe and powerplant ratings in as little as one year. This program is a one-year course, usually starting at the beginning of June. Entry at other times is allowed only with departmental approval.

While this program covers many major subject areas, special emphasis is placed on those skills most sought after in the Alaska job market. This intensive curriculum uses classroom and "hands on" laboratory instruction to prepare students for entry into the aviation field. After completing the program, students are eligible to take the Federal Aviation Administration examinations for the airframe and powerplant ratings. This qualifies program graduates for entry level positions in the maintenance, repair, overhaul and modification of aircraft. A student may request credit by examination for any AFPM class. See the department for details.

NOTE: All classes are scheduled between 7:40 a.m. and 4:10 p.m. Monday through Friday.

Airframe and Powerplant Certificate Program and Suggested Course Sequence

<table>
<thead>
<tr>
<th>Summer Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFPM 145 — Basic Mathematics</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 146 — Basic Electricity</td>
<td>2.0</td>
</tr>
<tr>
<td>AFPM 147 — Physics for Mechanics</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 148 — Aircraft Drawing</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 149 — Fluid Lines and Fitting</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 150 — Materials and Processes</td>
<td>2.0</td>
</tr>
<tr>
<td>AFPM 151 — Cleaning and Corrosion Control</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 152 — Federal Aviation Regulations</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 153 — Aircraft Weight and Balance</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 154 — Aircraft Ground Operations and Servicing</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 251 — Fuel Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 255 — Fire Protection Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 257 — Instrument Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>13.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFPM 231 — Powerplant Electrical Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 235 — Aircraft Reciprocating Engines</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 240 — Turbine Engines</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 250 — Powerplant Exhaust Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 254 — Ice and Rain Control Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 256 — Communication/Navigation Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 258 — Cabin Atmosphere Control Systems</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 261 — Wood Structures</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 264 — Sheet Metal Structures</td>
<td>3.5</td>
</tr>
<tr>
<td>AFPM 265 — Aircraft Welding</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>17.5</td>
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</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFPM 230 — Aircraft Electrical Systems</td>
<td>2.5</td>
</tr>
<tr>
<td>AFPM 244 — Lubrication Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 245 — Ignition Systems</td>
<td>2.5</td>
</tr>
<tr>
<td>AFPM 246 — Fuel Metering Systems</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 247 — Induction Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 249 — Powerplant Cooling Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>7.5</td>
</tr>
</tbody>
</table>
AFPM 252 — Propellers .................................................. 2.0
AFPM 253 — Aircraft Landing Gear Systems ................. 2.0
AFPM 260 — Aircraft Electrical Systems .................. 2.0
AFPM 262 — Aircraft Coverings ...................................... 1.0
AFPM 263 — Aircraft Finishers ....................................... 0.5
AFPM 266 — Aircraft Rigging .......................................... 1.0
AFPM 267 — Aircraft Inspections ...................................... 0.5
AFPM 270 — Aircraft Testing ............................................. 0.5
AFPM 271 — Powerplant Inspections ................................. 0.5
AFPM 272 — Powerplant Testing ........................................ 0.5

Total 18.5
Certificate Total 49.0

Airframe — Certificate
Students interested in qualifying for an FAA airframe mechanics certificate may choose to earn only the airframe certificate. However, in order to enhance employability, students are encouraged to complete the associate degree program.

Airframe Certificate and Suggested Course Sequence

<table>
<thead>
<tr>
<th>Summer Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFPM 145 — Basic Mathematics</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 146 — Basic Electricity</td>
<td>2.0</td>
</tr>
<tr>
<td>AFPM 147 — Physics for Mechanics</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 148 — Aircraft Drawing</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 149 — Fluid Lines and Fitting</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 150 — Materials and Processes</td>
<td>2.0</td>
</tr>
<tr>
<td>AFPM 151 — Cleaning and Corrosion Control</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 152 — Federal Aviation Regulations</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 153 — Weight and Balance</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 154 — Aircraft Ground Operations and Servicing</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 251 — Fuel Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 255 — Fire Protection Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 257 — Instrument Systems</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Total 13.0

AFPM 254 — Ice and Rain Control Systems .......... 0.5
AFPM 256 — Communication/Navigation Systems .... 0.5
AFPM 258 — Cabin Atmosphere Control Systems ...... 1.0
AFPM 260 — Aircraft Handling Systems .............. 1.0
AFPM 261 — Wood Structures .................................... 0.5
AFPM 264 — Sheet Metal Structures ...................... 3.5
AFPM 265 — Aircraft Welding .................................... 1.5

Total 9.0

AFPM 230 — Aircraft Electrical Systems ............. 2.5
AFPM 232 — Aircraft Rigging ........................................ 1.0
AFPM 233 — Aircraft Finishers ................................. 0.5
AFPM 266 — Assembly and Rigging ......................... 1.0
AFPM 267 — Aircraft Inspections .............................. 0.5
AFPM 270 — Aircraft Testing ........................................ 0.5

Certificate Total 31.0

Powerplant — Certificate
Students interested in qualifying for an FAA powerplant mechanics certificate may choose to earn only the powerplant certificate. However, in order to enhance employability, students are encouraged to complete the associate degree program.

Powerplant Certificate and Suggested Course Sequence

<table>
<thead>
<tr>
<th>Summer Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFPM 145 — Basic Mathematics</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 146 — Basic Electricity</td>
<td>2.0</td>
</tr>
<tr>
<td>AFPM 147 — Physics for Mechanics</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 148 — Aircraft Drawing</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 149 — Fluid Lines and Fitting</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 150 — Materials and Processes</td>
<td>2.0</td>
</tr>
<tr>
<td>AFPM 151 — Cleaning and Corrosion Control</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 152 — Federal Aviation Regulations</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 153 — Weight and Balance</td>
<td>1.0</td>
</tr>
<tr>
<td>AFPM 154 — Aircraft Ground Operations and Servicing</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 251 — Fuel Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 253 — Fire Protection Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 257 — Instrument Systems</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Total 13.0

AFPM 231 — Powerplant Electrical Systems .......... 1.5
AFPM 235 — Aircraft Reciprocating Engines .......... 5.0

AFPM 240 — Turbine Engines .................................. 1.5
AFPM 250 — Powerplant Exhaust Systems .............. 2.0

Total 8.5

Spring Semester Credits
AFPM 244 — Lubrication Systems .......................... 1.5
AFPM 245 — Ignition Systems .................................. 2.5
AFPM 246 — Fluid Metering Systems ..................... 1.5
AFPM 248 — Induction Systems ............................... 0.5
AFPM 249 — Powerplant Cooling Systems ............... 0.5

Total 9.5

Certificate Total 31.0

Evening Airframe and Powerplant Program
The evening airframe and powerplant program is a two-semester preparatory course for men and women with substantial documented experience in aircraft maintenance who wish federal certification. Admission is open to those with either civilian or military experience.

To enroll, students must receive authorization from the Federal Aviation Administration to take the airframe and/or powerplant certification exams or be eligible for it by the completion of the course. In order to qualify for this authorization, the applicant must have a minimum of 30 months experience performing duties appropriate to both the airframe and powerplant ratings, or have 18 months experience and be a member of an airframe or powerplant rating. Upon obtaining the FAA airframe and powerplant certificate, the student may wish to complete the associate degree in airframe and powerplant.

Alternate Fall Semester Credits
AFPM 111 — Basic Airframe and Powerplant .......... 4
AFPM 205 — Fundamentals of Airframe Structures .... 3
AFPM 206 — Fundamentals of Airframe Systems and Components ........................................ 3 Total 12

Alternate Spring Semester Credits
AFPM 213 — Powerplant Theory and Maintenance .... 6
AFPM 216 — Powerplant Structures and Systems ....... 6 Total 12

Evening Program Total 24

Alaska Native Languages

College of Liberal Arts
Department of Alaska Native Languages
(907) 474-7874

Minor only

There are 20 different Alaska Native languages: Aleut, Alutiq (also called Aleut or Sugpiaq), Central Yupik Eskimo, St. Lawrence Island Eskimo, Inupiaq Eskimo, Tsimshian, Haida, Tlingit, Eyak, and 11 Athabaskan languages. These languages are becoming recognized as the priceless heritage they truly are. Since the passage of the Alaska Bilingual Education Law in 1972 there has been a demand for teachers who can teach and teach in the schools throughout the state where there are Native children. Professional opportunities for those skilled in these languages exist in teaching, research, and cultural revitalization.

Central Yupik Eskimo is spoken by the largest number of people and Inupiaq by the next largest. In these two languages major and minor curricula are now offered. Courses are also regularly offered in Haida, Tlingit, and Tsimshian. For work in all other languages, individual or small-group instruction is offered under special topics. Thus there have frequently been instruction, seminars, and workshops also in Athabaskan.

UAFA is unique in offering this curriculum, which benefits also from the research staff and library of the Alaska Native Language Center.

Requirements

MINOR in Alaska Native Languages:

A minor in Alaska Native language requires 15 credits in Eskimo or Alaska Native language courses.

(See also "Eskimo.")
### Alaska Native Studies

**College of Liberal Arts**  
**Department of Alaska Native Studies**

**Degree:** B.A.

**Minimum Requirements for Degree:** 130 Credits

The Alaska Native studies program seeks to provide the student with (1) a keen awareness of the scope, richness, and variety of Alaska Native cultural heritages, and (2) a series of critical perspectives on the contemporary Native experience in the plural society of North America. The student's academic program will be interdisciplinary as it is built upon a combination of appropriate courses currently offered in other specialized disciplines and of an integrated set of core courses offered by the Alaska Native studies program.

The Alaska Native studies program has been principally designed to offer a second major or a minor for many bachelor's degree candidates. It enables students from many fields of specialization who anticipate either direct or indirect professional involvement in Alaska Native communities specifically and in multicultural settings generally. Only under special circumstances reviewed by the head of the program will students be advised to consider Native studies as a sole major, and they will be required to have a substantial minor in a specialized discipline.

#### Requirements

**Alaska Native Studies — B.A. Degree**

1. Complete general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:

**Prerequisites**

- ANS 101 — Introduction to Alaska Native Studies  
  **12 Credits**

- Select 3 courses from the following group:
  - ANI 215 — Eskimo-Aleut Languages  
  - ANI 216 — Indian Languages of Alaska  
  - ANTH 249 — Native Cultures of Alaska  
  - HIST 110 — History of Alaska Natives  
  - PS 263 — Alaska Native Politics  
  **3 Credits**

**Core Courses**

- Complete the following required courses (15 credits):
  - ANS 310 — The Alaska Native Lands Settlement  
  - ANS 320 — Language and Culture: Applications to Alaska  
  - ANS/ENGL 340 — Contemporary Native American Literature  
  - ANTH 490 — Narrative Art of Alaska Native Peoples (in translation)  
  - ANTH 491 — Cultural Knowledge of Native Elders  
  - ANTH 493 — Federal Indian Law and Alaska Natives  
  - ANTH/P/PS 450 — Comparative Aboriginal Rights and Politics  
  **24 Credits**

- Complete 9 credits of the following:

**B. Complete 9 credits of the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS 120</td>
<td>Cultural Differences in Institutional Settings</td>
<td>3</td>
</tr>
<tr>
<td>ANS 160</td>
<td>Alaska Native Dance</td>
<td>1</td>
</tr>
<tr>
<td>ANS/THTR 101</td>
<td>Introduction to Tuna Theater</td>
<td>1</td>
</tr>
<tr>
<td>MUS 223</td>
<td>Native Alaskan Music</td>
<td>3</td>
</tr>
<tr>
<td>ANS 250</td>
<td>Current Alaska Native Leadership Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>ANS 251</td>
<td>Practicum in Native Cultural Expression</td>
<td>1-3</td>
</tr>
<tr>
<td>ANS 260</td>
<td>Rhetorical Expressions of the Alaska Native Experience</td>
<td>3</td>
</tr>
<tr>
<td>ANS/RD 315</td>
<td>Tribal People and Development</td>
<td>3</td>
</tr>
<tr>
<td>ANS/PS 325</td>
<td>Alaska Native Self Government</td>
<td>3</td>
</tr>
<tr>
<td>ANS 351</td>
<td>Practicum in Native Cultural Expression</td>
<td>1-3</td>
</tr>
<tr>
<td>ANS 360</td>
<td>Advanced Alaska Native Dance</td>
<td>1</td>
</tr>
<tr>
<td>ANS 361</td>
<td>Advanced Tuna Theater</td>
<td>3</td>
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<tr>
<td>ANS/ART 365</td>
<td>Native Arts of Alaska</td>
<td>3</td>
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<tr>
<td>ANS 373</td>
<td>Native American Religion and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>SOC 408</td>
<td>American Minority Groups</td>
<td>3</td>
</tr>
<tr>
<td>ANS/ED 420</td>
<td>Alaska Native Education</td>
<td>3</td>
</tr>
<tr>
<td>ANS 475</td>
<td>Alaska Native Social Change</td>
<td>3</td>
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</tbody>
</table>

**MINOR in Alaska Native Studies**

A minor requires a minimum of 15 credits in Alaska Native Studies, including ANS 101, ANS 401 and at least 3 credits at the 300 - 400 level. All minor programs must be approved by the Head, Alaska Native studies.

### Anthropology

**College of Liberal Arts**  
**Department of Anthropology**

**Degrees:** B.A., B.S., M.A., Ph.D.

**Minimum Requirements for Degrees:** B.A. — 130 credits; B.S. — 130 credits; M.A. — 30 additional credits; Ph.D. — Open

The anthropology program offers a balanced and flexible program of academic courses and research opportunities in cultural anthropology, archeology, and physical anthropology, particularly with respect to the past and present cultures of the North. Anthropology contributes to an understanding of the complex problems of human behavior, cultural and social organization, and the relationship of humans to the various environments. Archeological and human ecological research carried out in the field and library provides information about past and present modes of living and of origins and distribution of peoples and cultures in the Arctic and subarctic.

#### Requirements

**Anthropology — B.S. or B.A. Degree**

1. Complete general university requirements and B.A. or B.S. degree requirements.
2. Complete the following program (major) requirements:

**Required Anthropology Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 103</td>
<td>Human Evolution and World Prehistory</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 104</td>
<td>Social/Cultural Anthropology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Historical Science:**

(Choose 6 credits from the following group)

- ANTH 211 — Fundamentals of Archeology | 3 |
- ANTH 315 — Human Biology | 3 |
- ANTH 414 — Environmental Archeology | 3 |
- ANTH 423 — Paleoanthropology | 3 |

**Social Science:**

(Choose 6 credits from the following group)

- ANTH 303 — Religion | 3 |
- ANTH 306 — Economic Anthropology | 3 |
- ANTH 307 — Kinship and Social Organization | 3 |
- ANTH 320 — Language and Literature | 3 |
- ANTH 410 — History of Social/Cultural Anthropology | 3 |

**Area Courses**

(Choose one 3 credit ethnohistorical area course and one 3 credit prehistory area course)

- ANTH 301 — World Ethnography: region | 3 |
- ANTH 210 — New World Prehistory | 3 |
- ANTH 212 — Old World Prehistory | 3 |

Open program electives at 200 level or above | 12 |

*Different geographic regions will be covered each year; e.g. North America, Northern Eurasia, Oceania, etc.*

**MINOR in Anthropology:**

A minor in anthropology requires ANTH 103 and 104, plus 12 additional hours in Anthropology.

**Anthropology — M.A. Degree**

The graduate program emphasizes a basic and general preparation in the field of anthropology. Such preparation enables graduates of the program to (1) pursue more advanced training leading to the Ph.D. in anthropology, or (2) prepare them to teach anthropology within secondary education and/or undergraduate levels of higher education, or (3) prepares students for career positions with various levels of government in which some anthropological background and/or expertise is beneficial. While the basic program is oriented toward general competence, subject specialization is possible through individual programs.

**Anthropology — Ph.D.**

The Ph.D. is available with an emphasis in several areas of anthropology: Alaskan archaeology; Quaternary studies; and contemporary Alaska Native studies.

For complete information on the graduate programs in anthropology, see the UAF Graduate Catalog.
Applied Accounting

School of Career and Continuing Education
Business Systems and Technology Department

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

The applied accounting 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. The courses in this program address the concerns of modern business people and provide the training and enhancement success in business. Many classes are scheduled in the evening to accommodate working students. Microcomputer and office technology labs are available for "hands on" training.

Requirements
Applied Accounting — A.A.S. Degree
1. Complete the following general university and A.A.S. requirements:

   Communications:
   ENGL 111X and ENGL 211X, 212*, or 213X ......................................................... 6
   SPC 131X or 141X ........................................................................................................... 3

   Mathematics or Natural Science:
   A math or natural science course at the 100 level or above ........................................... 3
   Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition .............................................................. 3

2. Complete the following major degree requirements:
   ACCT 101 — Elementary Accounting I ................................................................. 3
   ACCT 102 — Elementary Accounting II ................................................................. 3
   ABUS 141 — Payroll Accounting .............................................................................. 2
   ABUS 211 — Tex for Business Entities ...................................................................... 2
   ABUS 216 — Analyzing Financial Statements .......................................................... 3
   ABUS 221 — Microcomputer Accounting .................................................................. 3
   ABUS 230 — Applied Intermediate Accounting ........................................................ 3
   ABUS 243 — Applied Cost Accounting ..................................................................... 2
   BA 151 — Introduction to Business ........................................................................... 3
   ABUS 179 — Fundamentals of Supervision ............................................................... 3
   ABUS 241 — Business Law ......................................................................................... 3
   ABUS 155 — Business Math ....................................................................................... 2
   CAPS 150 — Computer Business Applications ......................................................... 3
   Economics Elective ...................................................................................................... 3
   OP 203 — Calculating Machines ............................................................................... 2
   Subtotal ....................................................................................................................... 41

3. Complete a total of 4 general electives credits .......................................................... 4
   Degree Total .............................................................................................................. 60

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Applied Mining Technology

School of Mineral Engineering
Department of Mineral Exploration and Mining Technology

Certificate
Minimum Requirements for Certificate: 30 credits

The primary objective of the program is to prepare students for employment in the mining technology industry. Possible career paths for certificate graduates include entry level positions with exploration, mining, environmental and consulting companies. A secondary objective is to provide career development and personal enrichment for experienced miners and workers within the mineral industry. UAF is unique in offering a one-year mining technology job training program. Certificate graduates will be trained to meet the anticipated demand for workers trained in open pit mining, surface coal mining, underground metal mining, sand and gravel, and placer mining.

Requirements
Applied Mining Technology — Certificate
1. Complete the following major specialty courses:
   MIN 101 — Minerals, Man and the Environment ..................................................... 3
   AMIT 101 — General Mining Technology ................................................................. 3
   GEOS 101 — The Dynamic Earth ............................................................................. 4
   AMIT 109 — Underground Mine Safety ................................................................... 2
   AMIT 110 — New Underground Miner Training ...................................................... 2
   AMIT 120 — Explosives I ......................................................................................... 2
   AMIT 125 — Mineral Exploration Techniques .......................................................... 3
   AMIT 129 — Surface Mining Safety .......................................................................... 1
   AMIT 130 — Surface Mining Operations ................................................................. 1
   AMIT 140 — Environmental Permitting ................................................................. 1
   AMIT 170 — Fundamentals of Coal Mining ............................................................... 3
   Subtotal ....................................................................................................................... 24

2. Select 4 credits from the following major specialty electives:
   AMIT 151 — Field Surveying ..................................................................................... 2
   AMIT 152 — Techniques of Fire Assay ...................................................................... 2
   AMIT 153 — Laboratory Analysis .............................................................................. 1
   AMIT 154 — Water Quality and Flocculents ............................................................. 1
   AMIT 155 — Drilling Technology .............................................................................. 1
   AMIT 156 — Applied Cartography ............................................................................ 1
   AMIT 161 — Thaskan Ore Deposits ......................................................................... 1
   AMIT 162 — Geochemical Sampling ......................................................................... 1
   AMIT 180 — Colored Stone Evaluation I ................................................................... 3
   AMIT 185 — Diamond Grading and Evaluation ....................................................... 3
   AMIT 199 — Special Topics ....................................................................................... 1
   AMIT 205 — Geophysical Surveying ......................................................................... 1
   AMIT 206 — Electromagnetic Surveying .................................................................. 1
   AMIT 210 — Advanced Underground Mining .......................................................... 2
   AMIT 220 — Explosives II ......................................................................................... 1
   AMIT 230 — Field Methods ....................................................................................... 2
   AMIT 231 — Heap Leaching ..................................................................................... 1
   AMIT 280 — Colored Stone Evaluation II ................................................................. 1
   AMIT 282 — Cooperative Work Experience ................................................................ 2
   AVTY 231 — Arctic Survival ...................................................................................... 3
   HLTH 120 — Industrial First Aid and CPR ................................................................ 1
   Subtotal ....................................................................................................................... 14

3. Any approved Applied Business, Computer Application, Drafting Technology, 100 level or above university science course, Mechanics, Welding, or School of Mineral Engineering course. NOTE: Only a maximum of 3 approved elective credits can be taken which must be approved in advance (in writing by the advisor of the Mining Technology Program). .................................................................................................................. 3
   Certificate total ........................................................................................................... 30

Applied Physics

College of Natural Sciences
Department of Physics

Degree: B.S.
Minimum Requirements for Degree: 130 credits

Requirements
Applied Physics — B.S. Degree
1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:
   Complete MATH 200-201-202, 302 and 9 additional credits in mathematics at the 200-level or above.
   *Complete PHYS 213, 311, and 331 and 12 additional credits in physics at the 300-level or above.
   Complete 20 approved credits** in a chosen subject area of applied physics.

3. Minimum credits required ......................................................................................... 130

*Implicit in this requirement are 8 credits of lower-division physics courses which are prerequisites for these courses.
**These credits must be approved before the beginning of the student's final semester by the head of the Physics Department.
Applied Small Business

College of Rural Alaska
School of Career and Continuing Education

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

Planning and preparation are the keys to success in business. Running a business effectively requires a basic understanding of the principles of accounting, management, economics, business law and finance. The two-year associate of applied science degree in applied business provides students with the skills and training needed to succeed in business. Instructors strive to equip students with practical understanding of the marketplace and not just a "textbook" view of business.

Requirements

**Applied Small Business — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements:
   - Written Communications:
     - ENGL 111X or ENGL 212X* ........................................ 6
     - SPE 131X or 141X ...................................................... 3
   - Mathematics or Natural Science:
     - MATH 107, 131X or 161 ............................................. 3
   - Elective selected from Humanities, Social Science, Mathematics, Natural Science or Perspectives on the Human Condition ................. 3

2. Complete the following major degree requirements:
   - Accounting Related Courses:
     - ACCT 101 — Elementary Accounting .................................................. 3
     - ACCT 102 — Elementary Accounting or ABUS 145 — Applied Accounting Issues for Small Businesses .................................................. 3
   - Small Business Environment Courses:
     - ABUS 151 — Village Based Entrepreneurship (College of Rural Alaska students) or ABUS 154 — Human Relations (School of Career and Continuing Education students) .................................................. 3
     - ABUS 272 — Small Business Planning .................................................. 3
     - ABUS 273 — Managing a Small Business .................................................. 3
   - General Business Courses:
     - ABUS 241 — Business Law or BA 331 — Legal Environment of Business .................................................. 3
     - BA 151 — Introduction to Business Economics Elective at the 100 level or above .................................................. 3
     - OP 221 — Records Management (College of Rural Alaska students) or OP 221 — Records Management (School of Career and Continuing Education students) .................................................. 3
     - OP 231 — Business Communications (School of Career and Continuing Education students) .................................................. 3
   - Area of Specialization: .......................................................... 12
     (Complete the requirements for one of the three areas of specialization (A, B, or C) as listed below.)

   **A. Managing Small Corporations**:
     - ABUS 232 — Fundamentals of Management or BA 301 — Processes of Management .................................................. 3
     - ABUS 233 — Financial Management .................................................. 3
     - 6 credits selected from:
       - ABUS 179 — Fundamentals of Supervision .................................................. 3
       - ABUS 211 — Taxes for Business Entities .................................................. 3
       - ABUS 223 — Principles of Business Law .................................................. 3
       - ABUS 231 — Introduction to Personnel .................................................. 3
     - BA 307 — Personnel Management .................................................. 3

   **B. Tourism**:
     - BA 160 — Tourism Principles and Practices .................................................. 3
     - ABUS 233 — Financial Management .................................................. 3
     - 6 credits selected from:
       - ABUS 179 — Fundamentals of Supervision .................................................. 3
       - ABUS 211 — Taxes for Business Entities .................................................. 3
       - ABUS 231 — Introduction to Personnel .................................................. 3
     - BA 307 — Personnel Management .................................................. 3

Other electives may be used with program approval.

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Arctic Engineering

School of Engineering
Department of Civil Engineering

Degree: M.S.
Minimum Requirements for Degree: 30 credits (beyond Bachelors Degree in Engineering)

The arctic engineering program is designed to provide training for graduate engineers who must deal with the unique challenges of design, construction, and operations in cold regions of the world. The special problems created by the climatic, geological, and logistical conditions of the Arctic and subarctic require knowledge and techniques not usually covered in the normal engineering courses.

The current development of petroleum and other natural resources has accentuated the demand for engineers trained in northern operations, both from the private industries that are involved in the development and from government agencies that must plan for or regulate this activity.

For complete information on the graduate program in arctic engineering, see the UAF Graduate Catalog.

Art

College of Liberal Arts
Department of Art

Degrees: B.A., B.F.A.
Minimum Requirements for Degrees: 130 credits

The program of the art department recognizes the responsibility of the fine arts within the humanities. Courses in art further encourage independent, original, and creative thinking.

The bachelor of fine arts is a professionally oriented degree designed to prepare students for careers in art. The degree is also the usual prerequisite for graduate studies in art. Enrollment in the B.F.A. program is recommended only for those students willing to make the considerable commitment of time and energy necessary to strive for professional competence in their major areas.
Requirements

Art — B.A. Degree
1. Complete general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:

A. Lower Division (27 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 105 — Beginning Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 205 — Intermediate Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 161, 162 or 163 — Design and Color Theory (2 out of 3 courses)</td>
<td>6</td>
</tr>
<tr>
<td>ART 211 — Beginning Sculpture</td>
<td>3</td>
</tr>
<tr>
<td>ART 213 — Beginning Oil Painting</td>
<td>3</td>
</tr>
<tr>
<td>One elective chosen from:</td>
<td></td>
</tr>
<tr>
<td>ART 207 — Beginning Printmaking</td>
<td>3</td>
</tr>
<tr>
<td>ART 209 — Beginning Metalsmithing</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Upper Division (12 credits)

Nine (9) credits in upper-division courses in one subject area, selected from one of these major concentrations:
- Drawing
- Sculpture
- Painting
- Ceramics
- Printmaking
- Metalsmithing

Upper-division Art History or Humanities 332 or Art 365

Minimum Required Credits for major: 39
3. Minimum Credits Required: 130

Transfer students who are candidates for the B.A. degree or a B.F.A. in Art must complete a minimum of 18 hours of credits in art courses while in residence.

Art — B.F.A. Degree
1. Complete general university requirements and B.A. degree requirements; a non-art minor is not required for this degree.
2. Complete the following program (major) requirements:

A. Lower Division (27 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 105 — Beginning Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 205 — Intermediate Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 161, 162 — 2-D Design, Color and Design or ART 163 — 3-D Design (two of the three)</td>
<td>6</td>
</tr>
<tr>
<td>ART 261, 262 — History of World Art</td>
<td>6</td>
</tr>
<tr>
<td>ART 211 — Beginning Sculpture</td>
<td>3</td>
</tr>
<tr>
<td>ART 213 — Beginning Painting</td>
<td>3</td>
</tr>
<tr>
<td>One of the following:</td>
<td></td>
</tr>
<tr>
<td>ART 207 — Beginning Printmaking or ART 209 — Beginning Metalsmithing or ART 268 — Beginning Native Art Studio</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Upper Division (45 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two areas of specialization in Art:</td>
<td></td>
</tr>
<tr>
<td>Major specialization</td>
<td>21</td>
</tr>
<tr>
<td>Minor specialization</td>
<td>9</td>
</tr>
<tr>
<td>Art Electives</td>
<td>3</td>
</tr>
<tr>
<td>Thesis Project</td>
<td>3</td>
</tr>
</tbody>
</table>
3. Minimum Credits Required: 130

Majors available for the B.F.A. are painting, drawing, printmaking, sculpture, ceramics, and metalsmithing.

9 credit minor or specialization for the BFA are painting, drawing, printmaking, sculpture, ceramics, metalsmithing and Native Art.
*HUM 332 or ART 365 may apply toward this requirement.

MINOR in Art
A minor in Art for the B.A. or B.S. degree is available only to non-art majors and requires 15 credits from at least 3 subject areas in Art.

Art Program for Teachers
Students who are preparing to teach art must complete the requirements for an education minor as required by the Department of Education.

Asian Studies

Interdisciplinary

Minor only
A minor in Asian Studies provides instruction in the varieties of Asian languages and cultures through an interdisciplinary approach, and enables students to consolidate various course offerings into a meaningful and cohesive program relevant to several major fields of specialization.

Requirements

MINOR in Asian Studies
Complete 15 semester credits in approved courses in Asian Studies, distributed among at least three departments, and including material on at least two Asian countries.


Associate of Arts

College of Rural Alaska
Bristol Bay Campus

Chukchi Campus

Interior Campus

Kuskokwim Campus

Northwest Campus

School of Career and Continuing Education

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

The associate of arts degree offers a rigorous program of study for the serious student who eventually intends to transfer to a baccalaureate program.

Requirements

All credit for the A.A. degree must be at the 100-level or above with 20 credits at the 200-level or above, and be distributed as follows:

Communication (9 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111X — Methods of Written Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 211X — Intermediate Exposition with Modes of Literature or &quot;ENGL 212 — Business, Grant and Report Writing or ENGL 213X — Intermediate Exposition&quot;</td>
<td>3</td>
</tr>
</tbody>
</table>

Mathematics or Natural Science (10 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 131X — Concepts and Contemporary Applications of Mathematics (or MATH 162, 200, 201, 202, 272 or any math course having one of these as a prerequisite)</td>
<td>3</td>
</tr>
<tr>
<td>One natural science course, with lab, selected from the baccalaureate core</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics or natural science elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Humanities and Social Science (18 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH/SOC 100X — Individual, Society and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ECON/PS 100X — Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>HIST 100X — Modern World History</td>
<td>3</td>
</tr>
<tr>
<td>ART/MUS/THR 200X — Aesthetic Appreciation: Interrelationship of Art, Drama and Music</td>
<td>3</td>
</tr>
<tr>
<td>ENGL/FL 200X — World Literatures</td>
<td>3</td>
</tr>
</tbody>
</table>
Humanities or social science elective

Two semester-length courses in a single non-English language taken at the university level may substitute for one of the required courses above and the three credit humanities or social science elective.

Library and Information Skills (0-1 Credit)

Successful completion of library skills competency test or LS 100X or LS 101X substitute for...

(0-1) Credit

(If it is strongly recommended that this requirement be completed before enrolling in the 200-level English course requirement or that it be completed concurrently with enrollment in the 200-level English course requirement.)

General Electives (22-23 Credits)

Any combination of courses—(Students planning to go on to the baccalaureate degree are advised to select courses meeting remaining core requirements and courses designated within baccalaureate majors and minors.)

Electives to total

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Athletic Coaching

College of Liberal Arts
Department of Physical Education

Minor only:

A minor in athletic coaching (18 credits) is available for those students more interested in the coaching of athletic teams, in schools or communities, than in the more general discipline of physical education.

Requirements

MINOR in Athletic Coaching
1. Complete the following required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE 411 — History and Philosophy of Sport and Physical Activity</td>
<td>3</td>
</tr>
<tr>
<td>PE 412 — Principles and Problems in Athletic Coaching</td>
<td>3</td>
</tr>
<tr>
<td>PE 421 — Physiology of Exercise</td>
<td>3</td>
</tr>
<tr>
<td>PE 432 — Biomechanics of Human Performance</td>
<td>3</td>
</tr>
<tr>
<td>PE 440 — Prevention and Care of Athletic Injuries</td>
<td>3</td>
</tr>
</tbody>
</table>

2. Complete the remaining credits in approved courses which will develop competency in the area selected for coaching...

3. (Note: This minor is not available with a physical education major.)

Atmospheric Sciences

College of Natural Sciences
Department of Physics

Degrees: M.S., Ph.D.

Minimum Requirements for Degrees: M.S., 30 additional credits; Ph.D. — no fixed credits

For complete information on the graduate programs in atmospheric sciences, see the UAF Graduate Catalog.

(See also “Space Physics”.)

Aviation Technology

School of Career and Continuing Education
Trade and Industry Department

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

The aviation technology curriculum leads to an associate of applied science degree for individuals aspiring to a career as a professional pilot. Courses are also offered for currently rated flight crew members who desire to refresh or upgrade their aeronautical knowledge in order to maintain and enhance their qualifications. Ground schools and flight training is arranged through local flying schools. Rated pilots or military aviators may be eligible for credit based upon experience, through the Credit for Prior Learning program. A student may request credit by examination for any AVTY class. See the department for details.

Requirements

Aviation Technology — A.A.S. Degree
1. Complete the following general university and A.A.S. requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications:</td>
<td></td>
</tr>
<tr>
<td>ENGL 111X and ENGL 211X, 212*, or 213X</td>
<td>6</td>
</tr>
<tr>
<td>SPC 131X or 141X</td>
<td>3</td>
</tr>
</tbody>
</table>

2. Mathematics or Natural Science:

   | Math or natural science course at the 100 level or above | 3       |

3. Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition

4. Complete the following major degree requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY 100 — Private Pilot Ground School</td>
<td>6</td>
</tr>
<tr>
<td>AVTY 101 — Private Pilot Flight Training</td>
<td>2</td>
</tr>
<tr>
<td>AVTY 102 — Commercial Ground Instruction</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 103 — Commercial Flying</td>
<td>2</td>
</tr>
<tr>
<td>AVTY 105 — Preventive Maintenance for Pilots</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 200 — Instrument Ground School</td>
<td>4</td>
</tr>
<tr>
<td>AVTY 201 — Instrument Flight Training</td>
<td>2</td>
</tr>
<tr>
<td>AVTY 231 — Arctic Survival</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 233 — Elements of Weather</td>
<td>3</td>
</tr>
</tbody>
</table>

Subtotal: 26 credits

3. Complete the following major specialty electives:

Select 15 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY 105 — Sooplane Flight Training</td>
<td></td>
</tr>
<tr>
<td>AVTY 106 — Multi-Engine Flight Training</td>
<td>1</td>
</tr>
<tr>
<td>AVTY 109 — Introduction to Skis</td>
<td>1</td>
</tr>
<tr>
<td>AVTY 110 — Biennial Flight Review</td>
<td>1</td>
</tr>
<tr>
<td>AVTY 115 — Elements of Weather</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 116 — Aviation History</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 117 — Aviation Weather</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 202 — Flight Instructor Ground School</td>
<td>2</td>
</tr>
<tr>
<td>AVTY 203 — Flight Instructor Flight Training</td>
<td>2</td>
</tr>
<tr>
<td>AVTY 204 — Instrument Flight Instructor</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 206 — Transport Pilot Ground School</td>
<td>4</td>
</tr>
<tr>
<td>AVTY 207 — Transport Pilot Flight Instruction</td>
<td>2</td>
</tr>
<tr>
<td>AVTY 226 — Flight Engineer Ground School</td>
<td>4</td>
</tr>
<tr>
<td>AVTY 232 — Aviation Astronomy and Navigation</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 233 — Polar Flight</td>
<td>1</td>
</tr>
<tr>
<td>AVT1 234 — Rescue Flight</td>
<td>1</td>
</tr>
</tbody>
</table>

Subtotal: 15 credits

4. General Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
</table>
   | ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

MINOR in Aviation Technology

A minor in aviation technology is available to students pursuing a Bachelor of Science or Bachelor of Arts degree. This program 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 Alaskan environment.

Foundation Courses (7 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY 100 — Private Pilot Ground School</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 111 — Fundamentals of Aviation</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 117 — Aviation Weather</td>
<td>3</td>
</tr>
</tbody>
</table>

Core Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY 231 — Arctic Survival</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 305 — Aviation Law</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVTY 301 — Aircrew Strategies</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 302 — Aerial Data Collection</td>
<td>2</td>
</tr>
<tr>
<td>AVTY 302L — Aerial Data Collection Lab</td>
<td>1</td>
</tr>
<tr>
<td>AVTY 402 — Aircraft Management</td>
<td>3</td>
</tr>
<tr>
<td>AVTY 405 — Advanced Aircraft Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.
Biochemistry and Molecular Biology

College of Natural Sciences
Department of Chemistry

Degrees: M.S., Ph.D.
Minimum Requirements for Degrees: M.S. — 30 additional credits; Ph.D. — open

For complete information on the graduate programs in biochemistry and molecular biology, see the UAF Graduate Catalog.

Biological Sciences

College of Natural Sciences
Department of Biology and Wildlife

Degrees: B.A., B.S., Ph.D.
Minimum Requirements for Degrees: B.A. — 130 credits; B.S. — 130 credits; Ph.D. — open

The curricula in the biological sciences program are designed to give the student a broad education as well as a sound foundation in the basic principles of biology. Students pursuing either a B.A. or B.S. degree may have majors in biological sciences. The B.A. degree includes fewer credits in the major field, but gives greater emphasis in the fields of social sciences and humanities and allows a greater breadth of subject matter in the curricula. The B.S. degree includes a foundation in the basic sciences, as well as a greater number of upper division courses within the biological sciences program. Candidates who expect to teach in public secondary schools must be sure that education requirements are met.

Requirements

Biological Sciences — B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:
   - BIOL 105-106, 210, 271, 362, and at least 16 additional credits in biology, including at least one course in botany, one in microbiology, and one in zoology. A majority of these additional credits in biology must be upper division (300-400) courses. A maximum of 5 credits of independent study (-97) may be applied to this requirement.
   - Chemistry — one year
3. Minimum credits required ........................................... 130

Biological Sciences — B.S. Degree
1. Complete the general university requirements and the B.S. degree requirements in communications and social sciences/humanities.
2. Complete the following program (major) requirements:
   - Biology Core Requirements: BIOL 105-106, 210, 271, 342, 362, MATH 200 or 272, STAT 200, CHEM 105-106, 321-322, and at least two courses in addition to those listed above, chosen from Statistics, Chemistry (200 level or above), Geosciences, Mathematics (200 level or above), Physics, Marine Science, and/or Space Physics and Atmospheric Sciences. At least 21 credits in Biology must be upper division (300-400) level courses. A maximum of 6 credits of independent study (-97) may be applied to this requirement.
3. Minimum credits required ........................................... 130

Foreign Language is encouraged.

a. For Biology Option complete the following requirements in addition to the biology core requirements: At least one course in physiology (BIOL 210 or 334) and 17 additional credits, including one course in zoology (BIOL 222, 305, 317, or 406).

b. For Botany Option complete the following requirements in addition to the biology core requirements: At least one course in: plant structure/function (BIOL 334), zoology (BIOL 222, 305, 317, or 406), plant systematics, evolution and diversity (BIOL 331 or 333), and plant ecology (BIOL 474). Two additional upper division (300-400) level courses in biology (including but not restricted to BIOL 308, BIOL 331, 333, 475, 476, NRM 313, 380, 411, or 451).*

c. For Cell and Molecular Option complete the following requirements in addition to the biology core requirements: Two of the following three courses (BIOL 361, 418, 442); one of the following two courses (BIOL 445, 452); plus one or two 4 unit upper division Biology elective; complete CHEM 324 and 451; complete a sequence of two introductory Physics courses (either PHYS 103X and 104X or 211 and 212).

*Students may petition to substitute with chemistry courses up to 7 credits in the B.A. program, 10 credits in the B.S. (Biology Option) program, or 4 credits in the B.S. (Botany Option) program, approved in advance, for the additional biology credits required for the degree.

MINOR in Biological Sciences
A minor in biological sciences requires 20 credits in biology, including BIOL 105-106, and three of the following courses: BIOL 210, 239, 271, 305, 342, 362.

Students from Other Departments
Candidates for the bachelor of science degree in general science wishing a major in biological sciences must satisfy both the requirements of their major curriculum and those listed above for a B.A. degree with a major in biological sciences.

For complete information on the graduate program in biological sciences, see the UAF Graduate Catalog.

Biology

College of Natural Sciences
Department of Biology and Wildlife

Degrees: M.S., M.A.T.
Minimum Requirements for Degrees: M.S. — 30 or more additional credits; Ph.D. — open

For complete information on the graduate program in biology, see the UAF Graduate Catalog.

Botany

College of Natural Sciences
Department of Biology and Wildlife

Degrees: M.S.
Minimum Requirements for Degree: M.S. — 30 additional credits

For complete information on the graduate program in botany, see the UAF Graduate Catalog.

Business Administration

School of Management
Department of Business Administration

Degrees: B.B.A., M.B.A.
Minimum Requirements for Degrees: B.B.A. — 130 credits; M.B.A. — 30 additional credits

The business administration department offers professional education in the fields of management, finance, marketing and travel industry management to those individuals interested in entering industry or government upon graduation. The goal of the program is to prepare men and women to meet the complex problems of the political, economic, and social environment and to enable them to give efficient service to industry and government on the basis of their academic training. BA 151 is an overview and is recommended as an introductory course for persons with a potential interest in a business degree or minor who are either undecided or perhaps unclear about the nature of the various functions performed in the administration of organizations. B.B.A. students must, during their first 30 hours, attain computer literacy by either testing or earning a "C" or better in a basic computer literacy course.

All majors must earn a "C" or better in all Common Body of Knowledge courses, department specific general requirements, major specific requirements, and specific math and statistics requirements.
Requirements

Business Administration — B.B.A. Degree
1. Complete general university requirements and B.B.A. degree requirements. (As part of the core, complete PHIL 322-Ethics.)
2. Complete the following requirement:
   ENGL 314 — Technical Writing .......................... 3
3. Complete the Common Body of Knowledge (CBK) (31 credits); Credits
   ACCT 101 and 102 — Elementary Accounting ................... 6
   AIS 310 — Intro. to Management Information Systems or AIS 316 — Accounting Information Systems ....... 3
   BA 325 — Financial Management ................................ 3
   BA 330 — The Legal Environment of Business ............. 3
   BA 343 — Principles of Marketing .............................. 3
   BA 360 — Production/Operations Management ............... 3
   BA 390 — Organizational Theory and Behavior .............. 3
   BA 462 — Administrative Policy .............................. 3
   ECON 324 — Inter. Macroeconomics or ECON 350 — Money & Banking .......................... 3
4. Complete the following major complex requirements: Credits
   ACCT 352 — Management Accounting ......................... 3
   BA 307 — Personnel Management ................................ 3
   BA 460 — International Business ................................ 3
   ECON 321 or 322 — Intermediate Microeconomics/Managerial Economics ...................... 3
   Option (selected from below) .................................. 15
5. Complete a minor complex (optional) or free electives .......... 17-18
   (All must be outside the School of Management with the exception of introductory computer literacy credits. The minor may not be from the School of Management.)

OPTIONS: (An option is required for the BBA degree in Business Administration.) Students are expected to have completed 300 level coursework before enrolling in 400 level option courses.

Option in Finance:
   BA 423 — Investment Management .............................. 3
   BA 430 — Current Topics in Finance ........................... 3
   BA 461 — International Finance ................................ 3
   Upper-division electives approved in writing by an option advisor .......................... 3

Option in Human Resource Management:
   BA 317 — Employment Law ...................................... 3
   BA 327 — Collective Bargaining and Labor Relations ....... 3
   BA 447 — Compensation Management ......................... 3
   BA 456 — Small Business Management ......................... 3
   BA 457 — Training and Management Development ......... 3

Option in International Business:
   BA 443 — International Marketing ............................... 3
   BA 462 — International Finance ................................ 3
   ECON 463 — International Economics ......................... 3
   Two academic years of one foreign language* .......................... 12-18
   (German, Japanese, Russian, Spanish, French)
   PS 321 or 322 — International Politics ....................... 3
   Complete one of the following (appropriate to language concentration):
   GEOG 305 — Geography of Europe (Except USSR) or
   GEOG 306 — Geography of the Soviet Union or
   GEOG 405 — Political Geography ............................... 3
   (*Note: Foreign language credit may also meet humanities general degree requirements.)

Option in Management:
   BA 317 — Employment Law ...................................... 3
   BA 327 — Collective Bargaining and Labor Relations ....... 3
   BA 425 — Advanced Corporate Financial Problems ......... 3
   BA 441 — Promotion Management ................................ 3
   BA 456 — Small Bus. Management ............................... 3

Option in Management Information Systems:
   AIS 312 — Information Systems Technology .................. 3
   AIS 316 — Accounting Information Systems .................. 3
   AIS 410 — Systems Analysis and Design ..................... 3
   AIS 412 — Systems Administration ............................ 3
   BA 314 or CS 425 — Database Management .................... 3
   (Under this option for the general BBA requirements, ACCT 342 may be substituted for ACCT 352 and a maximum of 6 credits of accounting may be included in the total free electives.)

Option in Marketing:
   BA 436 — Consumer Behavior .................................... 3
   BA 441 — Promotion Management ............................... 3
   BA 443 — Marketing Strategy .................................... 3
   BA 445 — Marketing Research ................................... 3
   BA 483 — Marketing Management ................................ 3

Option in Travel Industry Management:
   BA 372 — Hotel Administration .................................. 3
   BA 375 — Marketing of Hospitality Service .................... 3
   BA 377 — Food and Beverage Management ....................... 3
   BA 378 — Passenger Transportation Mgmt. .................... 3
   BA 471 — Tourism Seminar ...................................... 3
   6. Minimum credits required ...................................... 130

MINOR in Business Administration*:
   ACCT 102 — Elementary Accounting ............................ 3
   BA 307 — Personnel Management ................................ 3
   BA 325 — Financial Management ................................ 3
   BA 343 — Principles of Marketing ................................ 3
   Note: Required Prerequisites: Computer Literacy or AIS 101, ACCT 101, BA 151. ECON 200, MATH 161. STAT 201.
   Total 16

MINOR in Travel Industry Management*:
   ACCT 102 — Elementary Accounting ............................ 3
   BA 307 — Personnel Management ................................ 3
   BA 325 — Financial Management ................................ 3
   BA 343 — Principles of Marketing ................................ 3
   Note: Required Prerequisites: Computer Literacy or AIS 101, BA 151. ECON 343, ACCT 101, ECON 200, MATH 161.
   Total 15

*For a Bachelor of Arts or Bachelor of Science Degree.

Business Administration — M.B.A. Degree

For complete information on the graduate program in business administration, see the UAF Graduate Catalog.

Chemistry

College of Natural Sciences
Department of Chemistry

(907) 474-7525

Degrees: B.A., B.S., M.A., M.A.T., M.S.
Minimum Requirements for Degrees: B.A., B.S. — 130 credits; M.A., M.S. — 30 additional credits; M.A.T. — 36 additional credits

Graduates in chemistry qualify in many fields as teachers of chemistry, supervisors in industry; technical sales personnel; research chemists in federal, state, municipal, academic, or industrial laboratories; in premedicine; or as laboratory technicians. The rapid introduction of chemical techniques in all branches of commerce and the creation of the many synthetic products has 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 science, oceanography, and related interdisciplinary fields.

The curriculum in chemistry offers an opportunity for broad scientific study. All students specializing in chemistry will meet basic requirements in general inorganic, analytical, organic, and physical chemistry, as well as mathematics and physics. These may be supplemented by courses in biology, education, engineering, geophysics, geology, and advanced courses in biology, chemistry, mathematics, and physics according to the interest of the individual student.

Faculty from many departments and research institutes in the university participate in the department's Program in Biochemistry and Molecular Biology. This program, which emphasizes an understanding of the molecular principles involved in life processes, provides academic and research experience for both undergraduate and graduate students interested in careers in the growing area of biotechnology. This program may be especially attractive to students interested in premedicine.

The department offers the student well-equipped laboratories having instrumentation for nuclear magnetic resonance spectrometry, infrared, ultraviolet/visible, laser Raman, and atomic absorption spectrophotometry, mass spectrometry, gas chromatography, and carbon-hydrogen-nitrogen analysis. Additional equipment such as gas
chromatograph/mass spectrometer, x-ray diffractometer, electron microscope, and liquid scintillating counters are available in cooperation with other departments and institutes at UAF.

The chemistry department's four-year B.S. curriculum is accredited by the American Chemical Society.

Requirements

Chemistry — B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 105-106 — General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 202 — Basic Inorganic</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212 — Chemical Equilibrium &amp; Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213 — Quantitative Analysis Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 321-322 — Organic Chemistry</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 324 — Organic Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 331-332 — Physical Chemistry</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 412 — Instrumental Analytical Methods</td>
<td></td>
</tr>
<tr>
<td>CHEM 413 — Analytical Instrumental Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 434 — Physical Instrumental Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 492 — Seminar (seniors)</td>
<td>2</td>
</tr>
</tbody>
</table>
| CS 201 — Computer Programming or ES 201 — Computer Techniques | 3 | 3
| MATH 200-201-202 — Calculus                  | 12      |
| PHYS 103-104 or 211-212 — General Physics   | 8       |

3. Total Credits Required: 130

Chemistry — B.S. Degree
1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<td>CHEM 412 — Instrumental Analytical Methods</td>
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<tr>
<td>CHEM 413 — Analytical Instrumental Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 434 — Physical Instrumental Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 451 — General Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 452 — Biochemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 498 — Seminar (seniors)</td>
<td>2</td>
</tr>
</tbody>
</table>
| CS 201 — Computer Programming or ES 201 — Computer Techniques | 3 | 3
| MATH 200-201-202 — Calculus                  | 12      |
| PHYS 103-104 or 211-212 — General Physics   | 8       |

3. Total Credits Required: 130

Upon completing the recommended curriculum and fulfilling all general university requirements, the student will receive a baccalaureate degree certified by the American Chemical Society.

The electives must include at least 6 credits at the upper division level (to satisfy the UAF general degree requirements for 42 upper division credits). Chemistry foundation courses may be used toward partial fulfillment of the natural science requirement for the B.S. degree with a major in Chemistry.

Advanced courses in the physical or biological sciences or mathematics may be substituted with the permission of the head of the Chemistry Department. However, the student will not receive an ACS-certified degree.

Chemistry — B.S. Degree with Biochemistry/Molecular Biology Option
1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 105-106 — Fundamentals of Biology</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 342 — Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 361 — Cell Biology and Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 362 — Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 105-106 — General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 212 — Chemical Equilibrium &amp; Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213 — Quantitative Analysis Laboratory</td>
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<tr>
<td>CHEM 412 — Instrumental Analytical Methods</td>
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<td>CHEM 413 — Analytical Instrumental Laboratory</td>
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<tr>
<td>CHEM 434 — Physical Instrumental Lab</td>
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<tr>
<td>CHEM 451 — General Biochemistry</td>
<td>3</td>
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<tr>
<td>CHEM 452 — Biochemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 498 — Seminar (seniors)</td>
<td>2</td>
</tr>
</tbody>
</table>
| CS 201 — Computer Programming or ES 201 — Computer Techniques | 3 | 3
| MATH 200-201-202 — Calculus                  | 12      |
| PHYS 103-104 or 211-212 — General Physics   | 8       |

Major elective (approved by department head): 6

4. Total Credits Required: 130

MINOR in Chemistry
A minor in chemistry requires 12 credits above the foundation courses (CHEM 105-106) approved by the head of the Chemistry Department.

Biochemistry and Molecular Biology — M.S., Ph.D.
Chemistry — M.A.T. or M.S. Degree

For complete information on the graduate programs in chemistry, see the UAF Graduate Catalog.

Citizens' Law

College of Liberal Arts
Department of Political Science

(907) 474-7609

Minor Only

The program in Citizens' Law will give students not planning to go to law school the opportunity to become familiar with legal ideals, legal institutions and the legal process. The student is provided with tools for reasoned appraisal of how the law works and of the policies that underlie it. The minor concentration is based firmly on the view that the study of law has a rich humanistic tradition and that its pursuit can encourage sustained reflection of fundamental values.

Requirements

MINOR in Citizens' Law
(Not available with Justice major.)

Foundation Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST 110 — Introduction to Justice</td>
<td>3</td>
</tr>
<tr>
<td>PS 101 — Introduction to American Government and Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

Core Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST/PS 250 — History of the Law</td>
<td>3</td>
</tr>
<tr>
<td>JUST/PS 303 — Introduction to Legal Processes</td>
<td>3</td>
</tr>
<tr>
<td>JUST/PS 330 — Law and Society</td>
<td>3</td>
</tr>
<tr>
<td>JUST/PS 404 — Legal Research and Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses: (6 credits)

Choose 6 credits from the following courses. Must include two different programs or disciplines.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS 425 — Federal Indian Law and Alaskan Natives</td>
<td>3</td>
</tr>
<tr>
<td>BA 331 — The Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BA 332 — Business Law</td>
<td>3</td>
</tr>
<tr>
<td>JB 413 — Mass Media Law and Regulation</td>
<td>3</td>
</tr>
<tr>
<td>JUST 352 — Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>JUST 354 — Procedural Law</td>
<td>3</td>
</tr>
<tr>
<td>PS 302 — Congress and Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PS 322 — International Law and Organization</td>
<td>3</td>
</tr>
<tr>
<td>PS 435 — Supreme Court and American Legal System</td>
<td>3</td>
</tr>
<tr>
<td>PS 436 — Courts and Civil Liberties</td>
<td>3</td>
</tr>
</tbody>
</table>

Civil Engineering

School of Engineering
Department of Civil Engineering

Degrees: B.S., M.C.E., M.S.

Minimum Requirements for Degrees: B.S. — 135 credits; M.C.E. or M.S. — 30 additional credits

Civil engineers plan, design and supervise the construction of facilities essential to modern life in both the public and private sectors—facilities that vary widely in nature, size and scope: space launch 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 are the leaders in the development of today's sophisticated high technology and are in the forefront of high technology's newest applications. They employ the latest concepts in computer-aided engineering (CAE/CAD) during design, construction, project scheduling and cost control.

Civil engineers are problem solvers involved in community development and improvement and as sure are meeting the challenges of polluting, the deteriorating infrastructure, traffic congestion, energy
needs, floods, earthquakes, urban redevelopment and community planning.

The opportunity for creativity is unlimited given the wide scope of projects—Civil by civil engineering.

The civil engineering program at UAF began in 1922, had its first graduate in 1931 and since has graduated more than 500 men and women. Many of these graduates work in Alaska's cities, towns and villages in a wide range of responsible positions. More than 25 percent of Alaska's professional engineers practice in civil engineering. Civil engineers continue to provide a significant contribution to society.

The UAF civil engineering program has been accredited since 1940 and presently by the National Accreditation Board for Engineering and Technology (ABET). All engineering programs in the department give special attention to problems of northern regions.

### Requirements

**Civil Engineering—B.S. Degree**

1. Complete general university requirements.
2. Complete the following degree and program [major] requirements:

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td>Fall Semester</td>
<td>16 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENGL 111X — Methods of Comm</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 200 — Calculus</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ES 101 — Descriptive Geometry for Engineers</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 105 — General Chemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perspectives on the Human Condition</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Spring Semester</td>
<td>17 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP 131X or SP 141X</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 201 — Calculus</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE 431 — Structural Engineering I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 106 — General Chemistry</td>
<td>4</td>
<td></td>
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<tr>
<td></td>
<td>ES 201 — Computer Techniques</td>
<td>3</td>
<td>17</td>
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<tr>
<td></td>
<td>Second Year</td>
<td>17 credits</td>
<td></td>
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<tr>
<td></td>
<td>Fall Semester</td>
<td>16 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 202 — Calculus</td>
<td>4</td>
<td></td>
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<tr>
<td></td>
<td>PHYS 211 — General Physics</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENGL 211X or 213X</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ES 209 — Statics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perspectives on the Human Condition</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Spring Semester</td>
<td>16 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 302 — Differential Equations</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 212 — General Physics</td>
<td>4</td>
<td></td>
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<tr>
<td></td>
<td>ES 210 — Dynamics</td>
<td>4</td>
<td></td>
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<tr>
<td></td>
<td>GEOS 261 — General Geology for Engineers</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perspectives on the Human Condition</td>
<td>3</td>
<td>16</td>
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<tr>
<td></td>
<td>Third Year</td>
<td>18 credits</td>
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<tr>
<td></td>
<td>Fall Semester</td>
<td>18 credits</td>
<td></td>
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<tr>
<td></td>
<td>CE 334 — Properties of Materials</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CE 301 — Engineering Analysis</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ES 331 — Mechanics of Materials</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ES 341 — Fluid Mechanics</td>
<td>4</td>
<td></td>
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<tr>
<td></td>
<td>CE 402 — Intro. to Transportation Engineering</td>
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<td></td>
<td>Perspectives on the Human Condition</td>
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<tr>
<td></td>
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<td></td>
<td>ES 346 — Basic Thermodynamics</td>
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<td>CE 325 — Intro. to Geotech. Engineering</td>
<td>4</td>
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<td>CE 441 — Environ. of Electrical Engineering</td>
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<td></td>
<td>CE 431 — Structural Engineering I</td>
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<td></td>
<td>CE 344 — Water Res. Eng.</td>
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<tr>
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<td>CE 432 — Structural Engineering II</td>
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<td>ES 307 — Elem. of Electrical Engineering</td>
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<tr>
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<td></td>
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<td>18</td>
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<tr>
<td></td>
<td>Spring Semester</td>
<td>15 credits</td>
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<tr>
<td></td>
<td>ESM 430 — Economic Analysis and Operations</td>
<td>3</td>
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<tr>
<td></td>
<td>CE 438 — Design of Engr. Systems</td>
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<td>Perspectives on the Human Condition</td>
<td>3</td>
<td>15</td>
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<td>15</td>
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</tbody>
</table>

*The technical electives must include 12 credits of CE or EQE courses and three credits of approved technical courses. The student should consult his/her advisor. Four out of five electives must be taken from the list of approved CE electives or EQE elective graduate courses. Only one graduate level course may count toward graduation as a technical elective and the student must be within 30 credits of graduation and have a 3.0 GPA to enroll.

The ability to utilize computers for normal class work is expected in all engineering classes above the 100 level.

**Civil Engineering—M.S. or M.E. Degree**

For complete information on the graduate programs in civil engineering, see the UAF Graduate Catalog.

### Community Health Aide/Practitioner

**College of Rural Alaska**

<table>
<thead>
<tr>
<th>Location</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska Area Native Health Service</td>
<td>(907) 474-6085</td>
</tr>
<tr>
<td>Kuskokwim Campus</td>
<td>(907) 237-1302</td>
</tr>
<tr>
<td>Norton Sound Health Corporation</td>
<td>(907) 543-4541</td>
</tr>
<tr>
<td>Southeast Alaska Regional Health Corporation</td>
<td>(907) 443-3282</td>
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</table>

**Certificate I: Community Health Practitioner; Certificate II: Community Health Practitioner Certification; Degree: A.A.S**

**Minimum Requirements for Certificate: 31 credits; for Degree: 60 credits**

The Community Health Aide/Practitioner Program is a specialized multiagency paraprofessional health career program in Alaska's 17 rural villages. The mission of this educational program is to prepare Native residents to provide primary health care in remote villages under the supervision of a referring physician. The curriculum includes the knowledge and skills necessary to provide acute care for common medical problems, emergency care, well-child and prenatal care and follow-up for patients with chronic illnesses.

CHA Basic Training consists of three training sessions conducted at a CHAP Training Center. 600 hours of field work experience in the village clinic and a two-week preceptorship conducted by the Regional Health Corporation. Upon successful completion of CHA Basic Training, the Community Health Aide will be titled Community Health Practitioner and is eligible to receive a certificate from the CHAP Training Center and UAF.

After completing the Certificate I level, "certification" is issued by the CHAP Training Center. The "certification" process includes the CHAP Written Examination and the CHAP Field Evaluation by a health professional.

Admission to the Community Health Practitioner Certificate I Program requires that the student be employed by a Regional Health Corporation prior to entry into the program. A high school diploma and/or previous training or work experience in the health field is recommended, but not required. Community Health Aides are selected by the villages with the concurrence of the Regional Health Corporation.

The CHAP curriculum is taught by three Training Centers located in Anchorage, Bethel and Nome. The Seward Training Center currently teaches Session I and Emergency Trauma Training. The formal CHAP academic and clinical training is done in three sessions. CHA field experience consists of on-the-job experience during which time the CHA puts into practice the knowledge and skills learned in formal training. The Field Component of training includes a learning contract for each session and the practice and evaluation of CHA skills while working with a variety of health professionals. A two-week preceptorship is provided following Session III.

The Coordinator-Instructor (C-I) or Supervisor-Instructor (S-I) from the Regional Health Corporation, who gives the on-site instruction in the village, is usually a C.H.P., an R.N., or a Midlevel Practitioner. The village physician emphasizes acute care, emergency care, and follow-up of patients with chronic illnesses. The visiting Public Health Nurse emphasizes well-child care, health education, surveillance and promotion. The Maternal Child Health Nurse emphasizes prenatal care and family planning.

The requirements for the CHAP Certificate, CHAP Certification, and the CHAP A.A.S. Degree are kept uniform throughout the state by the UAF CHAP Academic Review Committee which is advisory to the Dean of the College of Rural Alaska, the CHAP Training Centers and the Community Health Aide Program Directors in the Regional Native
Health Corporations. The CHAP Directors and C-1's/S-1's in the Regional Native Health Corporations assist the CHA in meeting these requirements.

Requirements

Community Health Practitioner — Certificate I

Prior to admission to the Certificate level curriculum, Community Health Aide Presession I is strongly recommended if available within the first month of hire. This can be waived if Session I is available within the same time period. The CHP Certificate level or basic training courses equal 31-33 hours of UAF credit. Community Health Aide (CHA) training consists of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHP 002</td>
<td>CHA Presession I (optional)</td>
<td>2</td>
</tr>
<tr>
<td>EMTT 101</td>
<td>Emergency Trauma Training First Responder</td>
<td>3</td>
</tr>
<tr>
<td>CHP 110</td>
<td>CHA Session I</td>
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<tr>
<td>CHP 121</td>
<td>CHA Session II</td>
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<tr>
<td>CHP 122</td>
<td>CHA Session III</td>
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<tr>
<td>CHP 124</td>
<td>CHA Preceptorship</td>
<td>2</td>
</tr>
</tbody>
</table>

Total 31-33

Currently the requirements for the CHP Certificate, meaning completion of the curriculum, are provided as follows:

CHAP Training Center
1. Emergency Trauma Training First Responder (Training Center or Field).
2. Sessions I, II and III.

Regional Health Corporations
1. 600 hours of field work experience.
2. CHA learning reinforcement and evaluation following each session in which the CHA Skills List and learning contracts are completed.
3. A two week preceptorship consisting of at least 30 hours of supervised clinical experience.
4. CHA Skills List.

Community Health Practitioner — Certificate II

Requirements for CHP “certification”, meaning competency to practice, are
1. A CHP Certificate I from an approved CHAP Training Center.
2. Statewide written and practical CHP certification examination score of 80% or higher.
3. Satisfactory field evaluation by the C-1/S-1 of the CHA’s job performance in the village clinic.

Completion of the academic and field components of the CHP Certificate Program currently requires 30-36 months. All of these credits may be applied to the CHP Associate of Applied Science Degree. Currently, the Training Centers in Anchorage, Bethel, Nome, and Sitka provide CHP certification.

Community Health Practitioner — A.A.S. Degree

The curriculum for this program is built upon the Community Health Practitioner Certificate I Program and the Associate of Applied Science Degree requirements. Completion of the CHP Certificate I Program is an entrance requirement for the Community Health Practitioner Associate of Applied Science Degree Program.

Because Community Health Practitioners are employed in rural communities, a special office has been created within the College of Rural Alaska to service their needs. UAF employs a CHAP Academic Coordinator to represent this program within the university and to relate to the many agencies involved in this training throughout the state.

The Alaska Area Native Health Service and the Regional Native Health Corporations may, with university approval, offer health related courses for credit. The Community Health Practitioners entering the degree program may take courses from any of the units within the university, including distance education.

Community Health Practitioner — A.A.S. Degree

1. Complete the following general university and A.A.S. requirements:

   **Communications:**
   ENGL 111X and ENGL 211X, 212*, or 213X
   SPC 131X or 141X
   Credits: 6

   **Mathematics or Natural Science:**
   A math or natural science course at the 100 level or above
   Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition
   Major Specialty Requirements
   EMTT 103 — Emergency Trauma Training First Responder
   Credits: 3

Select six credits from the CHP Advanced courses listed below:

- CHP 202 — Emerg Care for Community Health Practitioners
- CHP 203 — Clinical Update for Community Health Practitioners
- CHP 206 — Mental Health/Substance Abuse
- CHP 207 — Maternal and Infant Health
- CHP 208 — Communicable Disease
- CHP 211 — Health Education
- 3 Electives
- Total Credits: 30

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Credits awarded with the CHP Certificate may be used as the applied studies requirement in the Associate of Arts (A.A.) degree. For students interested in becoming primary health care professionals, two years of clinical experience are needed as a CHA for application to the University of Washington Medex Northwest Physician Assistant Program.

Community Psychology

College of Rural Alaska
Department of Behavioral Sciences and Human Services

Degree: M.A.
Minimum Requirements for Degree: 48 credits

The M.A. program in community psychology seeks to train graduate level practitioners in mental health and community development who can work sensitively and effectively in cross-cultural community contexts, and particularly in Native settings in rural areas and urban settings with multi-cultural populations. The program attempts to meet the demand for trained mental health professionals in rural Alaska.

For complete information on the graduate program in community psychology, see the UAF Graduate Catalog.

Computer Applications

School of Career and Continuing Education
Department of Business Systems and Technology

(907) 451-7223

Special training programs

A wide array of computer courses are offered by SCCE. Computer application courses, programming courses and special user seminars are offered regularly. Special emphasis is placed on popular business application programs for both the Apple and IBM-compatible compat computers. There are computer labs equipped with Compac, Apple IIe and Apple Macintosh computers at the UAF Downtown Center.

Computers are used in nearly all major industries and in large and small businesses. Mastery of one or more computer systems or software applications can greatly enhance career opportunities in many fields. In addition, computer programming is growing and profitable cottage industry well suited to our environment. A complete certificate program is currently in the planning stage.

Computer Information Systems

School of Management
Department of Business Administration

Minor only

(907) 474-7253

The computer information systems minor is designed to permit students in bachelor of arts and bachelor of science degree programs to study a particular field of computer systems and to be introduced to a...
reasonable segment of information systems relating to the business enterprise.

### Requirements

**MINOR in Computer Information Systems**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<td>3</td>
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<tr>
<td>ACCT 102 - Elementary Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>BA 101 - Introduction to Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BA 201 - COBOL or CS 201 Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>BA 220 - Programming Languages or CS 202 Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>BA 310 - Management Information Systems</td>
<td>3</td>
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<tr>
<td>ACCT 316 - Accounting Information Systems</td>
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</tbody>
</table>

**Total** | **21** |

### Computer Science

**College of Liberal Arts Department of Mathematical Sciences**

Degrees: B.S., M.S.

Minimum Requirements: B.S. — 120 credits; M.S. — 30 additional credits

The computer science program is administered by the Department of Mathematical Sciences within the College of Liberal Arts. 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 potential for employment is one of the highest in the entire range of subjects spanned by the College of Liberal Arts.

Both the B.S. and M.S. degrees follow the recommendations of the Association for Computing Machinery (ACM) and the Institute for Electrical and Electronic Engineers (IEEE). The curriculum for the B.S. in computer science consists of a core of courses which introduces the student to the fundamentals of computer programming, hardware, theory, and applications. Mathematics and engineering play critical roles in the core. Throughout the curriculum the emphasis is on problem solving and applications of general principles to real-world problems. A solid background in fundamentals enables the graduate not only to understand today's computers and their uses, but also to understand and participate in future developments.

#### Computer Science — B.S. Degree

1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following mathematics requirement:
   - **Credits**
   - MATH 200 — Calculus 4
   - MATH 201 — Calculus 4
   - MATH 308 — Abstract Algebra 3
   - STAT 300 — Statistics 3
   - One of the following:
     - MATH 302 — Differential Equations 3
     - MATH 310 — Numerical Analysis 3
     - MATH 314 — Linear Algebra 3
     - MATH 371 — Probability 3
     - MATH 406 — Mathematical Statistics 3
     - MATH 460 — Mathematical Modeling 3
3. Complete the following major requirements:
   - **Credits**
   - CS 201 — Computer Programming I 3
   - CS 202 — Computer Programming II 3
   - CS 301 — Assembly Language Programming 3
   - CS 311 — Data Structures and Algorithms 3
   - CS 321 — Digital Logic 3
   - CS 331 — Programming Languages 3
   - CS 402 — Senior Project and Professional Practice 3
   - CS 411 — Analysis of Algorithms 3 or CS 451 — Automata and Formal Languages 3
   - EE 341 — Computer Organization I 4
   - EE 342 — Computer Organization II 4
   - Upper Division electives: either CS courses or approved electives such as BA 310, EE 443, EE 454 9
4. Total Credits Required 120

### Cross-Cultural Communications

**College of Liberal Arts Cross-Cultural Communications Program**

(907) 474-7623

Cross-cultural communications is an innovative program designed to serve the needs of Alaska Native and rural students at UAF. Recognizing that the transition to university communication patterns presents challenges which vary in type as well as degree, depending on a student's cultural background, CCC offers several courses designed to capitalize on the similarities of experience brought to the University of Alaska Native and rural students. It aims to enable such students to make the transition more quickly than might otherwise be the case.

CCC courses which are not listed under Cross-Cultural Communications designators may be found under Developmental Studies, English and Mathematics, where they can be recognized by CCC and CCC section "numbers."

### Culinary Arts

**School of Career and Continuing Education Service Industry Department**

Certificate: Degree: A.A.S.

Minimum Requirements for Certificate — 32 credits; for Degree — 63 credits

The Culinary Arts Program prepares students for a career in the expanding field of culinary arts. Graduates can seek employment in food production or in the management of restaurants, bakeries, hotels, hospitals, or any facility that requires food service as part of its operation. This department offers both an associate degree and certificate programs. Note: additional fees covering a uniform and supplies will be charged when students enroll in CAH 140 or CAH 240 level classes.

#### Requirements

**Culinary Arts — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements:
   - **Credits**
   - Communications:
     - ENGL 111X and ENGL 211X, 212*, or 213X 6
     - SPC 131X or 141X 3
   - Mathematics or Natural Science:
     - A math or natural science course at the 100 level or above 3
     - Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition 3
2. Complete the following major degree requirements:
   - **Credits**
   - CAH 103 — Principles of Cooking 3
   - CAH 150 — Food Service Sanitation 1
   - CAH 152 — Supervisory Skills 2
   - CAH 241 — Food Production I 4
   - CAH 242 — Food Production II 4
   - CAH 243 — Food Production III 4
   - CAH 247 — Bakery Production II 4
   - CAH 248 — Bakery Production III 4
   - CAH 250 — Gastronomic 2
   - Subtotal: 26
   - Select 18 credits from the following:
     - CAH 140 — Principles of Cooking 6
     - CAH 141 — Food Production I 6
     - CAH 143 — Principles of Baking 6
CAH 146 — Bakery Production I ....................................................... 6
Subtotal............................................................................. 18
3. Major specialty electives
Select at least 4 credits from the following:
CAH 170 — Gourmet Cooking .................................................... 2
CAH 141 — Gourmet Baking ....................................................... 2
CAH 160 — Externship .............................................................. 12
CAH 253 — Storeroom: Purchasing and Receiving ......................... 2
CAH 255 — Food Service Management ......................................... 2
CAH 256 — Food Service Accounting ........................................... 2
CAH 257 — Oenology and the Hospitality Industry I ......................... 1
Subtotal........................................................................... 42
Degree Total ................................................................... 63

*ENGL 212 does not fulfill the second half of the written communica-
tion requirement for the baccalaureate degree.

**Culinary Arts Certificate Program and Suggested Course Sequence:**

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<tr>
<td>CAH 140 — Principles of Cooking</td>
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<tr>
<td>CAH 143 — Principles of Baking</td>
<td>6</td>
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<tr>
<td>CAH 150 — Food Service Sanitation</td>
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<th>First Year/Spring Semester</th>
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<td>CAH 141 — Food Production I</td>
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<tr>
<td>CAH 146 — Bakery Production I</td>
<td>6</td>
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<tr>
<td>CAH 152 — Supervisory Skills</td>
<td>2</td>
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<td>CAH 154 — Dining Room Service</td>
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<td>Subtotal..................</td>
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Certificate Total............ 32

**Dentistry**

**Pre-Professional Program**

(907) 474-6396

Dentistry concerns itself with the prevention, diagnosis and treat-
ment of oral disease and disorders. Professional dental study typi-
ically involves a four-year program of graduate study combining class-
room instruction, lab work, and hands-on patient treatment. Students can also go on to specialize within the dental field by pursuing advanced training at the post-doctoral level. Both specialists and general dentists are required to be state licensed before practicing.

While a definitive pre-dentistry curriculum is not required for admission into dental school, it is recommended that students include specific courses as part of their undergraduate studies. At UAF, these courses are Chemistry (CHEM 103X and 104X or 105X and 106X), organic chemistry (CHEM 321 and 322), biology (BIOL 103X and 106X), anatomy and physiology (BIOL 111 and 112), and physics (PHYS 103X and 104X). Dental schools also expect students to have a broad general background in the social sciences and humanities. While some dental schools will accept students after they have completed three years of undergraduate work, the majority of students entering dental school have already completed a bachelor's degree. A strong academic record at the undergraduate level, as well as high scores on the Dental Admis-
sion Test (DAT), are desirable for admission.

Students whose career goal is dentistry, or who are considering this career choice, should contact the Academic Advising Center to be assigned an academic advisor. Program advisement, exploration of professional schools and licensing requirements, and financial planning are available to meet the needs of students in fulfilling their career aspirations.

**Diesel & Heavy Equipment Mechanics**

**School of Career and Continuing Education**

**Trade and Industry Department**

<table>
<thead>
<tr>
<th>Course</th>
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<td>3. Major specialty electives</td>
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<tr>
<td>Select at least 4 credits from the following:</td>
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<tr>
<td>CAH 170 — Gourmet Cooking</td>
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<td>CAH 141 — Gourmet Baking</td>
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<tr>
<td>CAH 160 — Externship</td>
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<tr>
<td>CAH 253 — Storeroom: Purchasing and Receiving</td>
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<tr>
<td>CAH 255 — Food Service Management</td>
<td>2</td>
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<tr>
<td>CAH 256 — Food Service Accounting</td>
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<tr>
<td>CAH 257 — Oenology and the Hospitality Industry I</td>
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<td>Degree Total</td>
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**Requirements**

**Diesel/Heavy Equipment Mechanics — Certificate**

**Suggested Course Sequence**

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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DSLT 150 — Diesel Mechanics I</td>
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<tr>
<td>DSLT 152 — Diesel Mechanics II</td>
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<tr>
<td>WMT 103 — Welding I</td>
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<tr>
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<tr>
<td>Spring Semester</td>
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<tr>
<td>MECN 101 — Heavy Equipment/Mechanics I</td>
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<tr>
<td>MECN 102 — Heavy Equipment/Mechanics II</td>
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<tr>
<td>WMT 103 — Welding II</td>
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<tr>
<td>Subtotal</td>
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<tr>
<td>Certificate Total</td>
<td>34</td>
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</tbody>
</table>

**Drafting Technology**

**School of Career and Continuing Education**

**Trade and Industry Department**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DRT 100 — Introduction to Drafting</td>
<td>1</td>
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<tr>
<td>DRT 101 — Beginning Drafting I</td>
<td>4</td>
</tr>
<tr>
<td>DRT 121 — Building Trades Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>MATH 107 — Elementary Functions</td>
<td>3</td>
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<tr>
<td>Approved electives*</td>
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<tr>
<td>Subtotal</td>
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<tr>
<td>Summer Semester</td>
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<tr>
<td>DRT 102 — Beginning Drafting II</td>
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</tr>
<tr>
<td>DRT 140 — Architectural Drafting</td>
<td>4</td>
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<tr>
<td>DRT 151 — Civil Concepts</td>
<td>2</td>
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<tr>
<td>MATH 108 — Trigonometry</td>
<td>2</td>
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<tr>
<td>Approved electives*</td>
<td>2</td>
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<tr>
<td>Subtotal</td>
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<tr>
<td>Certificate Total</td>
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**Civil Drafting**

<table>
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<tr>
<td>DRT 100 — Introduction to Drafting</td>
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<tr>
<td>DRT 101 — Beginning Drafting I</td>
<td>4</td>
</tr>
<tr>
<td>DRT 121 — Building Trades Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>MATH 107 — Elementary Functions</td>
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<tr>
<td>Approved electives*</td>
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<tr>
<td>Subtotal</td>
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<td>Spring Semester</td>
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<tr>
<td>DRT 102 — Beginning Drafting II</td>
<td>2</td>
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<tr>
<td>DRT 150 — Civil Drafting</td>
<td>4</td>
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<tr>
<td>DRT 141 — Principles of Architectural Drafting</td>
<td>2</td>
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<tr>
<td>MATH 108 — Trigonometry</td>
<td>2</td>
</tr>
</tbody>
</table>
Approved electives* ............................................................. 5
Subtotal .................................................. 15
Certificate Total ................................................. 30
*Must be approved in advance (in writing) by the drafting program adviser.

Early Childhood Development

School of Career and Continuing Education

Academic Programs

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

The A.A.S. degree in early childhood development prepares students to find employment or to improve present job skills in early childhood and child care programs. Positions in child care centers, head start programs, early childhood education programs, child welfare service agencies and public school aid programs are potential career directions for program graduates. The A.A.S. degree in early childhood development also leads to state certification as an Early Childhood Education Associate (ECDAA) after completion of a certificate program (30 credits) in early childhood development is also available.

Requirements

Early Childhood Development — A.A.S. Degree
1. Complete the following general university and A.A.S. requirements:
   Communications:
   ENGL 111X and ENGL 211X, 212X* or 213X .................................. 6
   SPC 131X or 141X .................................................. 3
   Mathematics or Natural Science:
   A math or natural science course at the 100 level or above ........... 3
   PSY 101 — Introduction to Psychology ...................................... 3
   2. Complete the following major degree requirements:
      Credits
      ECHD/PSY 245 — Child Development .................................. 3
      ECHD 100 — Introduction to Early Childhood ......................... 3
      ECHD 110 — Practical Paths to Discipline and Guidance .......... 1
      ECHD 120 — Child Nutrition, Health and Safety ................. 3
      ECHD 131 — Group Management ....................................... 1
      ECHD 135 — Infant/Toddler Care ..................................... 2
      ECHD 250 — Practicum i ........................................... 3
      ECHD 251 — Practicum II ............................................... 3
      ECHD 255 — Activities for Young Children ......................... 3
      ECHD 260 — Introduction to the Exceptional Child ............... 3
      ECHD 265 — Culture Learning and the Young Child ............. 2
      SOCI 242 — The Family ............................................. 1
      3. Complete 15 credits of general electives ...................... 15
      Degree Total ................................................. 60

Recommended Electives: Any ECHD catalog or special topics (ECHD 189 or 293) courses. Courses from Applied Business or Counseling programs which have been approved by the ECHD advisor.

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Early Childhood Development — Certificate
1. Complete the following required courses
   Credits
   ENGL 111X — Methods of Written Communication ..................... 3
   PSY 101 — Introduction to Psychology .................................. 3
   PSY 245 — Child Development ........................................ 3
   ECHD 100 — Introduction to Early Childhood Development .......... 3
   ECHD 110 — Practical Paths to Discipline and Guidance .......... 1
   ECHD 120 — Child Nutrition, Health and Safety ................. 3
   ECHD 131 — Group Management ....................................... 1
   ECHD 135 — Infant/Toddler Care ..................................... 2
   ECHD 250 — Practicum i ........................................... 3
   ECHD 255 — Activities for Young Children ......................... 3
   Subtotal .................................................. 25
   2. Complete 5 credits of general electives ............................ 5
   Certificate Total .................................................. 30

Earth Science

College of Natural Sciences
Department of Geology and Geophysics

Degree: B.A.
Minimum Requirements for Degree: 130 credits

This program provides broad training in various aspects of earth science. It is especially applicable to those wishing to teach earth science or who are entering a field such as resource management where broad training in earth science is important. Basic course work is
required in three program areas: geography, geology and mineral engineering. Additional required course work is arranged in consultation with the individual program head. Students wishing to enroll in this degree program should contact the head of the Department of Geology and Geophysics.

### Requirements

**Earth Science — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following fundamental courses:
   - A. Complete one year of college-level mathematics
   - B. Complete CHEM 103X and 104X or PHYS 103X and 104X
   - C. Complete one semester of computer science approved by major

**School of Management**

**Department of Economics**

**Degrees:** B.A. — 120 Credits; B.B.A. — 130 Credits

**Economics** is the study of those social activities which are 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 department considers the goal of its undergraduate instruction to be three-fold: (1) to provide students with basic tools of analysis, and factual, statistical, and descriptive materials which will assist them in discharging their duties as citizens; (2) to introduce students majoring in this department to the various fields of economics in order to prepare them for positions in business, government, and graduate study; and (3) to offer a course of study suitable for a minor in economics.

The Department of Economics offers work leading to the master of science degree in resource economics. The graduate program in economics is designed to develop economists for research and administrative positions in business, governmental agencies and other organizations. Graduate courses and seminars are offered in economic theory, econometrics, mathematical economics and resource economics.

**Requirements**

**Economics — B.A. Degree**

1. Complete general university requirements and B.A. degree requirements. (Complete MATH 162 to meet the mathematics requirement for the core.)
2. Complete the following program requirements:

   - Foundation courses that meet B.A. degree requirements:
   - ECON 200 — Principles of Economics ....................................................... 4
   - MATH 150 — Algebra for Business and Economics ........................................ 3
   - Political Science elective ........................................................................... 3
   - Other foundation courses:
     - ACCT 101 — Elementary Accounting ....................................................... 3
     - STAT 200 — Elementary Statistics ............................................................. 3
   - Complete 30 additional credits in Economics including: ECON 227 — Intermediate Statistics for Economics and Business 3
     - ECON 321 — Intermediate Microeconomics .............................................. 3

**ECON 324 — Intermediate Macroeconomics ................................................. 3**
**ECON 463 — International Economics ........................................................... 3**
**Economics electives ...................................................................................... 18**

(Must be 300-level or higher. 6 credits of the following courses may be included: B.A. or B.B.A. degree majors must be in courses designated as writing intensive (W) courses.)

3. Minimum credits required ............................................................................ 120

**Economics — B.B.A. Degree**

1. Complete the general university and B.B.A. degree requirements.
2. Complete the following Common Body of Knowledge (CBK) (31 credits):
   - ACCT 101 and 102 — Elementary Accounting ............................................. 6
   - MIS 310 — Intro. to Management Information Systems or
     - AIS 316 — Accounting Information Systems ............................................. 3
   - BA 325 — Financial Management .................................................................... 3
   - BA 330 — Legal Environment of Business .................................................. 3
   - BA 343 — Principles of Marketing .................................................................... 3
   - BA 360 — Operations Management ................................................................ 3
   - BA 489 — Organizational Behavior ............................................................... 3
   - BA 482 — Administrative Policy .................................................................... 3
   - ECON 324 — Intermediate Macroeconomics or
     - ECON 350 — Money and Banking .............................................................. 3

3. Complete the following major complex requirements:
   - Political Science elective ............................................................................. 3
   - ECON 321 — Intermediate Microeconomics ................................................. 3
   - ECON 324 — Intermediate Macroeconomics (if not taken in CBK) ............... 3
   - ECON 463 — International Economics ........................................................... 3
   - Economics electives ...................................................................................... 15-18

4. Complete a minor complex (optional) or free electives ............................... 20-21

   - At least 10 credits must be outside the School of Business and Management

   - Nine hours from the following courses (At least three hours must be at the 300 level):
     - ECON 335, 350, 351, 409, 420, 436, 437, 438, 451, and
     - ANS 415

   - Electives approved by major advisor ................................................................ 9

   - C. Free Electives

   - These credits may be used for an optional minor or second BBA Major.

   - (At least 3 credits must be in courses offered outside of School of Business and Management.)

   - Total 16

5. Minimum credits required ............................................................................ 130

**Economics Major Requirements**

27 Credits

- A. General Requirements
  - PS 102 (or BBA 101 is also taken), PS 201, 211, 263, or 302 ......................... 3
  - B. Economics Requirements
  - ECON 321 — Intermediate Microeconomics ................................................. 3
  - ECON 324 — Intermediate Macroeconomics ................................................. 3
  - ECON 463 — International Economics ........................................................... 3

  - Nine hours from the following courses (At least three hours must be at the 300 level):
    - ECON 335, 350, 351, 409, 420, 436, 437, 438, 451, and
    - ANS 415

  - Electives approved by major advisor ................................................................ 9

  - C. Free Electives

  - These credits may be used for an optional minor or second BBA Major.

  - (At least 3 credits must be in courses offered outside of School of Business and Management.)

  - Total 20 Credits

3. Minimum credits required ............................................................................ 130

- Only six credit hours of electives in this category are required if Econ 350 is taken as part of the CBK.
- Courses in this category must be in upper division level and may be accounting, business, or economics courses, where the major's 3 credits must be in 
  secondary accounting or business administration. Courses in this category may be utilized to satisfy the requirements of other BBA degree majors.

**MINOR in Economics**

All minor programs must be approved by the head of the Economics Department.

A minor in Economics requires:

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>Total 16</td>
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</tbody>
</table>

**Education**

**College of Rural Alaska**

**Department of Education**

**Degrees:** B.Ed., M.Ed., Ed.S.

**Minimum Requirements for Degrees:** B.Ed. — minimum of 130 credits; M.Ed. — minimum of 36 additional credits, Ed.S. — 36 credits beyond master's degree and 60 credits beyond baccalaureate; Post Baccalaureate: Elementary certification — minimum of 45 credits; Secondary certification and k-12 certification — minimum of 33 credits.

**Degrees and Programs — Education**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 16</td>
</tr>
</tbody>
</table>
I. Certification and Accreditation Information

Teaching certificates are issued by the Alaska Department of Education and Early Childhood Development. Students who successfully complete a UAF Education program including student teaching will meet the current academic requirements for Alaska certification. Students interested in teaching in a state other than Alaska should consult the certification department for that state to obtain specific certification requirements.

All UAF education programs are accredited by the National Council for Accreditation of Teacher Education (NCATE), and follow the standards for Teacher Education Programs. They are also approved by the State of Alaska Department of Education.

Students may contact the Office of Certification and Advising in the UAF Department of Education for additional information and support.

II. Admission to Teacher Education

In addition to being accepted by the University, all students wishing to be certified must also formally apply for admission to the Fairbanks elementary education program or secondary teachers for Alaska program in person at the Fairbanks campus, or the Cross Cultural Education Development (X-CED) elementary or secondary education program offered on the rural campuses. Admission requirements for these programs may be found on the following pages.

Continuation in these programs is based upon the maintenance of satisfactory performance in all areas of the program. Students who fail to earn a C- or better, or who FAIL student teaching will be exited from the program, and further involvement is dependent upon a re-application process. See the Coordinator of the Office of Clinical Practices regarding this procedure.

III. Education Programs

Education programs at the University of Alaska Fairbanks have the responsibility for preparing highly qualified professionals in education who are prepared to teach in both urban and rural Alaska, and to work with multicultural and minority students, especially Alaska Native students.

These education programs are offered through two delivery systems: resident programs at the Fairbanks campus, and distance-delivery programs through the Cross Cultural Education Development Program (X-CED) at the following rural campus areas: Barrow (Arctic Region), Bethel (Kuskokwim), Dillingham (Bristol Bay), Interior Campus, Kotzebue (Chukchi), and Nome (Northwest).

A. Fairbanks Campus Resident Program:

Offered at the Fairbanks campus are resident programs leading to both elementary and secondary teaching certificates. These programs are designed for full-time students, although part-time students are accommodated when possible. The professional year, the last year in the program, is an intensive compressed integrated curriculum that incorporates university classwork with practicum experiences and culminates in student teaching. It requires a full-time commitment since students are placed in the school for methods' practicum experiences and student teaching.

Available at the Fairbanks campus is a Bachelor of Education degree program in elementary education, an elementary education minor with certification, an elementary education minor without certification, a general education minor, a post-baccalaureate elementary education program (a minimum of the elementary minor), and a secondary and K-12 certification program (the Teachers for Alaska Program). A Bachelor of Education degree in secondary education is no longer available at the Fairbanks campus. A student wishing to be certified for secondary teaching must complete the bachelor's degree requirements, including all requirements for a certifiable major, before entering the Teachers for Alaska program.

B. Rural Campuses Cross-Cultural Education Development Program (X-CED)

The X-CED program is the teacher education program delivered through the University of Alaska Fairbanks' rural campuses to serve the unique educational needs of Alaska's village residents. Full-time education faculty members are responsible for coordinating program activities within each region through the regional campuses. The X-CED program offers full-time undergraduate course work in education for students seeking a B.Ed. degree in either elementary or secondary education. Available degree majors, minors, and concentration areas are limited by faculty resources. Priority for enrollment in field-based courses is given to students formally admitted to the program, but are available to other students on a space-available basis and with permission of the instructor. Applicants for admission to the program are reviewed and recommended by regional panels.

In addition, the XCED program provides supplemental services including workshops, technical assistance and other support services as time and resources permit. All inquiries should be addressed to the program coordinator's office at each campus, or the Program Head, X-CED, Center for Cross-Regional Education Programs, Department of Education, Fairbanks campus.

IV. Elementary Education Programs

To be recommended for an elementary teaching certificate, a student must complete the requirements of one of the following three options: 1) B.Ed. in Elementary Education, 2) Minor in Elementary Education with certification, or 3) Post-Baccalaureate Certification in Elementary Education. All three options are available both at the Fairbanks campus and through the X-CED program.

Students admitted to either the Fairbanks Teacher Education program or the X-CED program may transfer between programs without re-applying for admission. However, it is important to note that the programs have different requirements, placement procedures, and timelines. The Office of Certification and Advising will assist transferring students.

Students graduating under earlier catalog requirements will substitute ED 410, 411, 412, and 413 for the past required courses Ed 381, 419 and 421.

Program Requirements

B.Ed. Degree (Minimum Credits - 130)

1. Complete all university core requirements.
2. Complete the following degree and program (major) requirements:

   Credits

   A. Humanities (9 credits)
   LING 101 - Nature of Language ............................................. 3
   Electives (9 credits)
   B. Social Sciences (9 credits)
   ANTH 242 - Native Cultures of Alaska ..................................... 3
   Electives (9 credits)
   C. Mathematics (6 credits)
   MATH 205 - Math. for Elementary School Teachers I .................. 3
   MATH 206 - Math. for Elementary School Teachers II ................. 3
   D. Complete one of the concentrations listed below:

   Concentration 1: Humanities (9 credits)
   At least 12 credits concentrated in one discipline
   Concentration 2: Social Science (9 credits)
   At least 12 credits concentrated in one discipline
   Concentration 3: Mathematics and Science (9 credits)
   At least 12 credits concentrated in one discipline
   Concentration 4: ESL/Linguistics (9 credits)

   Courses (9 credits)
   ENG 118 - Elementary Grammar ............................................. 3
   ENG 162 - Applied Language/Linguistics ................................. 3
   ANS 320 - Language and Ethnicity ........................................... 3

   Credits in a language (6 credits)
   Electives (6 credits)

   B. Liberal Arts Electives (Minimum Credits - 36)
   Approved linguistics courses (6 credits)
   Concentrations (25-27 credits)
   ANS 307-308 - Bilingual and Multicultural Education (18 credits)
   ANS 315 or 316 - Alaska Native Languages (6 credits)
   Electives (6 credits)

   C. Early Childhood Development (16 credits)
   12 credits of approved Early Childhood Development plus
   6 upper division credits from one of the following:
   Art
   English
   Education
   English
   Speech
   Music
   Theater

   E. Education - complete the following:
   Foundation/Theory Courses
   ED 201 - Introduction to Education ........................................ 3
   ED 230 - Diagnosis and Evaluation of Learning ....................... 3
   ED 305 - Communications in Cross-Cultural Classrooms .......... 3
   ED 375 - The Exceptional Learner ......................................... 3
   Education Foundation Elective (ED 345, 346, 380, 450, 422, or ANS 420)
   Physical Education Elective (PE 316, 317 or 327) ................. 3
   ED 304 - Literature for Children ........................................... 3
   Art Education Elective (ED 309, 310) ..................................... 3
   Methods Block Courses
   ED 410 - Foundations of Literacy Development ........................ 3
   ED 411 - Strat. for Reading/Writing Instr. in Multicult. Classrooms 3

   Required of this program are Elective (6 credits)

   3. Concentration in some discipline or minor in an area of interest.

   4. Recommended courses are required for the program.

   5. All required courses are required for the program.

   6. Recommended for this program.

   7. All Electives are required for the program.

   8. Recommended for the program.

   9. Required for this program.
MINOR in Education — With or Without Teacher Credential Endorsement

Majors in other departments who wish to obtain an Elementary Certificate should contact the UAF Department of Education to obtain course requirements and application procedures for admission to the Teacher Education Program. Students must have completed the necessary prerequisites and have been admitted to the Teacher Education Program prior to acceptance for placement in methods courses and student teaching. Students may have a minor in education without student teaching, but they must complete student teaching if they wish to meet certification requirements for teaching.

MINOR in Elementary Education (WITH credential endorsement):

Foundation/Theory Courses

PSY 240 — Developmental Psychology in Cross-Cultural Perspective

Methods Block Courses*

ED 410 — Foundations of Literacy Development
ED 411 — Str. for Reading/ Writing Instr. in Multicult. Classrooms
ED 412 — Lang. Arts and Social Studies: Methods and Curric. Dev ...
ED 413 — Math. and Science: Methods and Curric. Dev ...

ED 452 — Elementary Student Teaching

* A minimum of 6 credits of math, including MATH 205, is required for admission to methods.

MINOR in Elementary Education (WITHOUT credential endorsement):

Complete the Elementary Education minor requirements excluding ED 452 — Elementary Student Teaching.

Teresa John tells Teachers for Alaska students about her experiences as a student in rural Alaska.
Post-Baccalaureate Elementary Certification Program:

Post-baccalaureate students who wish to obtain an Elementary Certificate should contact the UAF Department of Education to obtain course requirements and application procedures for admission to the Teacher Education Program. Students must have completed the necessary prerequisites and have been admitted to the Teacher Education Program prior to acceptance for placement in methods courses and student teaching.

Course requirements are the same as those for Elementary Education Minor with Certification.

Admission Requirements

The Elementary Education Program is a selective teacher education program. In order to obtain an elementary teaching certificate, all students (B.Ed. majors, elementary education minors, and post-baccalaureate) must not only complete one of the above options, they also must be admitted to the Teacher Education Program. Admission to UAF as a degree student majoring in education does not automatically qualify a student for admission to the Elementary Teacher Education Program. Admission to the program is based on a comprehensive system that includes more than one measure and is also must be in accordance with the appropriate professionals in the schools. Consistent procedures and relevant criteria are used to determine eligibility for student teaching. Systematic approaches are used to assist education students who are making unsatisfactory progress in the program. Specific admission procedures and criteria for each of these three steps for the Fairbanks and X-CED programs are described in the following sections.

Fairbanks Campus Program

1. Admission to elementary education program (B.Ed. major, elementary education minor, and post-baccalaureate) in order to be considered for admission to the elementary education program, students must:
   A. Submit a complete application, including all required transcripts and references, in accordance with deadlines.
   B. Complete a minimum of 45 semester credits (up to 30 transfer credits may be used).
   C. Students will be chosen for the program based on the following multiple measures which will be weighted and assessed by various means, including but not limited to faculty rating forms, letters of reference, university transcripts, writing samples, and evaluations from University-sponsored practicum placements. The range and balance in these four areas will be considered in a review by the faculty. Questions faculty will ask in this review include: does the student have:
      1) a solid academic background (a minimum cumulative GPA of 2.7)
      2) interpersonal, intercultural, and communication skills.
      3) successful experience in one or more of the following contexts:
         a. pre-school or public school classrooms.
         b. in resource settings with children.
         c. rural Alaska
         d. culturally diverse settings.
      4) practical skills and life experiences.

2. Review criteria for entry to elementary education professional year (methods block and student teaching)
   A. Acceptance to the elementary education program.
   B. Placement information form on file with Elementary Education Office by October 1 to begin the professional year during the spring semester or by February 15 to begin the professional year during the fall semester. Students are admitted for a specific semester, and must comply if their schedule changes.
   C. Completion of 90 credits leading to a bachelor's degree.
   D. Completion of all required education courses (except ED 410. 411. 412, 413, 414, 415) and all required math courses, with a minimum grade of "C" in education and math courses and a minimum cumulative GPA of 2.7.
   E. Approval of Elementary Education Committee to enter the professional year.
   F. A maximum of 15 credits per semester is recommended while enrolled in the professional year.
   G. Review criteria for entry to elementary education student teaching
A. Successful completion of Methods Block.
B. Placement information for student teaching on file with the Office of Clinical Practices by October 1 for student teaching in the spring semester or by February 15 for student teaching in the fall semester.
C. A completed physical examination.
D. Approval of faculty to enter student teaching.

Students who feel they have experience comparable to student teaching may petition to have the requirement reduced or waived. See the Coordinator of the Office of Clinical Practices regarding this procedure.

Rural placements for student teaching are also available. Contact the Office of Clinical Practices for further information.

X-CED Program

1. Admission to elementary education program (B.Ed. major, elementary education minor, and certification)

In order to be considered for admission to the elementary education program, students must:
   A. Submit a complete application, including all required transcripts and references, in accordance with deadlines.
   B. Complete a minimum of 45 semester credits with a minimum GPA of 2.5
   C. Document the following:
      1) Evidence of long term commitment to the region.
      2) Evidence of academic ability.
      3) Familiarity with local Native language and culture.
      4) Demonstrated interest and potential for success in field.
      5) Professional qualities indicating successful working relationship with others.

2. Review criteria for entry to elementary professional year and student teaching

Contact X-CED Program for specific requirements

V. Secondary Education Programs

To be recommended for a secondary teaching certificate, a student must complete the requirements of one of the following three options: 1) B.Ed. in Secondary Education (X-CED Program, distance delivery only), 2) Secondary Certification: X-CED Program (distance delivery only), or 3) Secondary Certification: Teachers for Alaska Program (Fairbanks campus only).

Admission procedures and criteria for admission to the X-CED secondary education program are the same as those for the X-CED elementary education program. Admission procedures and criteria for admission to Fairbanks' Teachers for Alaska Program are discussed below.

Program Requirements

Fairbanks Campus Secondary Certification Program: Teachers for Alaska (TFA) Program

The Teachers for Alaska Program (TFA) is a professional certification program which prepares highly qualified teachers for secondary school positions. The program is especially designed for students who want to teach at the secondary school level either in small rural schools or in Alaska's urban multicultural secondary schools. The program offers two options: 1) secondary (7-12) certification in a certifiable subject area, and 2) K-12 small schools certification in a certifiable subject area. It is an extended two-semester program which begins two or three weeks before the start of one academic semester, and complete after the start of the following academic semester. For further information on the program, please contact the Coordinator of the UAF Office of Certification and Advising.

Admission Requirements

1. Applicants for the TFA program must meet credit requirements for certification in a specific subject area as approved by the Alaska Department of Education. The program offers two options: 1) secondary certification in a certifiable subject area, and 2) K-12 small schools certification in a certifiable subject area. Certifiable subject areas are: Alaska Native Languages, Anthropology, Art, Biological Science, Chemistry, English, Foreign Languages, General Science, Geography, History, Mathematics, Music, Physical Education, Physics, Political Science, Speech Communication, Theatre Arts, Language Arts/Humanities (interdisciplinary), Social Science (interdisciplinary), or Math/Science (interdisciplinary). The Office of Certification and Advising will evaluate past degrees to determine eligibility.
2. Acceptance to TFA is contingent upon acceptance into the University of Alaska Fairbanks and completion of a TFA application form obtained from the Education Department. TFA student admissions are reviewed by the Education Committee, which may also require interviews. To be reviewed for admission in the following fall semester, and by October 11 in order to be reviewed for admission in the following spring semester.

4. Teachers for Alaska is a selective teacher education program. A comprehensive system that includes more than one measure is used to assess the personal characteristics, communication, and basic skills proficiency of candidates preparing to teach. This system includes, but is not limited to, the following multiple measures which will be weighed and assessed by various means, including a review of transcripts, scores on standardized tests, letters of reference, and successful full-time teaching experience. Faculty may also require interviews. The range and balance of these areas will be considered in a review by the faculty. Questions the faculty ask in making admissions decisions include: do the student have:

a) a diverse, solid academic background (GPA of 2.7 or higher),
b) interpersonal, intercultural, and communication skills,
c) successful experience in one or more of the following contexts:
   1) other settings with students,
   3) rural students,
   4) culturally diverse settings, and
   5) practical skills and life experiences

5. Once accepted into the program, TFA 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 to be recommended for teaching certification or be recommended for a teaching certificate. In assessing student progress, faculty review the following information, including grades, observations, faculty recommendations, demonstrated academic competence, and recommendations from the appropriate professionals in the schools. Systematic approaches are used to assist education students who are making unsatisfactory progress in their programs.

6. Reciprocity will be maintained with rural campus programs. TFA students wishing to complete their professional year on the Fairbanks campus must send a copy of their transcript to the Office of Certification and Advising. Please contact your advisor and the Coordinator for the Office of Certification and Advising for further information.

**Course Requirements: TFA Secondary Subject Area Endorsement**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. First Block (15 credits):</td>
<td></td>
</tr>
<tr>
<td>ED 502 - Teaching as Effective Inquiry</td>
<td>4</td>
</tr>
<tr>
<td>ED 583 - Teaching as Decision Making and Invention</td>
<td>8</td>
</tr>
<tr>
<td>ED 584 - Practicum: Teaching in Small and Large Schools</td>
<td>3</td>
</tr>
<tr>
<td>ED 585 - Reflective Inquiry into Multicultural Classrooms and...</td>
<td>3</td>
</tr>
<tr>
<td>(Formerly ED 619)</td>
<td></td>
</tr>
<tr>
<td>ED 586 - Designing Learning Environments</td>
<td>3</td>
</tr>
<tr>
<td>(Formerly ED 692)</td>
<td></td>
</tr>
<tr>
<td>ED 453 - Student Teaching</td>
<td>12</td>
</tr>
</tbody>
</table>

**Additional Requirements for TFA K-12 Small Schools Certificate:**

1. Same as above except ED 453 plus:
2. ED 454 - Student Teaching K-12 (This is an 18 week student... | 12      |
| 3. Complete the following 6 credits:
   ED 411 - (language arts), ED 412 (social studies) or ED 413 (math/ | 3       |
   science), depending on your area of specialization                   |         |
| ED 410 - Foundations of Literacy Development                          | 3       |

**Transition Policy**

Students graduating under earlier catalog requirements will substitute ED 582, 583, and 584 for the past required courses ED 402, 407, 424/425, and 430. For TFA students only, these courses, together with ED 543, 585 and 556, will constitute a minor in secondary education leading to certification. Physical Education and Music students seeking a teaching endorsement should contact their department for information on required education courses.

**Minor in General Education**

For those students interested in exploring the possibility of a career in education before beginning the elementary education program for those students who are interested in education but who may not wish to pursue certification, there is the option of a minor in general education that is not linked to certification or admission to either education program. Students may also elect to take one or more of the following courses according to their own personal interests. The minor consists of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ED 201 - Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 299 - Practicum in Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 350 - Communication in Cross-Cultural Classrooms</td>
<td>3</td>
</tr>
<tr>
<td>Two approved education electives</td>
<td>6</td>
</tr>
<tr>
<td>PSY 240 - Dev. Psych. in Cross Culture Perspective</td>
<td>3</td>
</tr>
</tbody>
</table>

**B.Ed. Degree (Minimum Credits - 130) (X-CED Program)**

1. Complete university core requirements.
2. Complete the following degree and program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Humanities (9 credits)</td>
<td></td>
</tr>
<tr>
<td>LING 101 - Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td>HUM 100 - Western Civilization, HUM 101 - Intro. to...</td>
<td>6</td>
</tr>
<tr>
<td>B. Social Sciences (9 credits)</td>
<td></td>
</tr>
<tr>
<td>ANT 241 - Native Cultures of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>PSY 101 - Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 240 - Development Psychology in Cultural Perspective</td>
<td>3</td>
</tr>
<tr>
<td>C. Mathematics (6 credits)</td>
<td></td>
</tr>
<tr>
<td>Math Electives</td>
<td>6</td>
</tr>
<tr>
<td>D. Complete one of the 3 interdisciplinary majors/minors listed below:</td>
<td></td>
</tr>
<tr>
<td>Credit or minor must have a minimum of 12 upper division credits.</td>
<td></td>
</tr>
<tr>
<td>1. Language Arts/Humanities (48 credits)</td>
<td></td>
</tr>
<tr>
<td>Core English requirements</td>
<td>6</td>
</tr>
<tr>
<td>Contemporary Issues required</td>
<td></td>
</tr>
<tr>
<td>Journalism, Speech Communication and Theater</td>
<td>6</td>
</tr>
<tr>
<td>Alaska Native Languages, Foreign Languages and Literature, Linguistics</td>
<td>6</td>
</tr>
<tr>
<td>2. Social Sciences (48 credits)</td>
<td></td>
</tr>
<tr>
<td>Alaska Native Studies (courses classified as humanities only), Art,</td>
<td>9</td>
</tr>
<tr>
<td>Humanities, Music, Philosophy</td>
<td></td>
</tr>
<tr>
<td>Electives from above areas</td>
<td></td>
</tr>
<tr>
<td>3. Core Social Science requirements</td>
<td></td>
</tr>
<tr>
<td>History Electives</td>
<td>3</td>
</tr>
<tr>
<td>(Recommended: HIST 101 - 102 - Western Civilization, HIST 131-132...</td>
<td>9</td>
</tr>
<tr>
<td>Anthropology Electives</td>
<td>6</td>
</tr>
<tr>
<td>(Recommended: ANTH 241 - Social/Cultural Anth., ANTH 242 - Native...</td>
<td>6</td>
</tr>
<tr>
<td>Cultures of Alaska</td>
<td></td>
</tr>
<tr>
<td>Political Science Electives</td>
<td>6</td>
</tr>
<tr>
<td>(Recommended: PS 101 - Intro. to Amer. Govt. and Politics, PS 263...</td>
<td>6</td>
</tr>
<tr>
<td>Alaska Native Politics</td>
<td></td>
</tr>
<tr>
<td>Geography Electives</td>
<td>6</td>
</tr>
<tr>
<td>(Recommended: GEOG 101 - Intro. Geography or GEOG 103 - World...</td>
<td>6</td>
</tr>
<tr>
<td>Economics Electives</td>
<td></td>
</tr>
<tr>
<td>Economics Electives</td>
<td>6</td>
</tr>
<tr>
<td>(Recommended: ECON 202 - Princ. of Econ. I, ECON 201 - Princ. of Econ.</td>
<td>6</td>
</tr>
<tr>
<td>II, or ECON 137 - The Alaskan Economy, or ECON 235 - Intro. to...</td>
<td></td>
</tr>
<tr>
<td>Upper Division Social/Scientific Electives</td>
<td>12</td>
</tr>
<tr>
<td>Selected from the following areas (minimum of 9 credits in one area):</td>
<td></td>
</tr>
<tr>
<td>History, Anthropology, Sociology, Geography, Political Science,</td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td></td>
</tr>
<tr>
<td>3. Math/Science (45 credits)</td>
<td></td>
</tr>
<tr>
<td>Core Math requirements</td>
<td>3</td>
</tr>
<tr>
<td>HUM 202 - Unity in the Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Math Electives (minimum 6 credits upper division)</td>
<td>12</td>
</tr>
<tr>
<td>Science Electives</td>
<td>8</td>
</tr>
<tr>
<td>Science Electives</td>
<td>8</td>
</tr>
<tr>
<td>4. Social Science Electives</td>
<td></td>
</tr>
<tr>
<td>5. Approved Health/Nutrition Elective (HMV 206, EMTT 198, EPG 236,</td>
<td>3</td>
</tr>
<tr>
<td>ECHD 120, HLTH 203)</td>
<td></td>
</tr>
</tbody>
</table>

**E. Education - Complete the following:**

- **Foundation/Theory Courses**
  - ED 201 - Introduction to Education                                  | 3       |
  - ED 330 - Diagnosis and Evaluation of Learning                       | 3       |
  - ED 350 - Communication in Cross-Cultural Classrooms                | 3       |
  - ED 375 - The Exceptional Learner                                    | 3       |
  - Education Foundation Elective (ED 345, 346, 380, 450, 422, or... | 3       |
- **Methods Block Courses**
  - ED 401 - Foundations of Literacy Development                       | 3       |
  - ED 402 - Reading Strategies for Secondary Teachers                 | 3       |
  - ED 404 - Secondary School High Programs                             | 3       |
  - ED 425 - Community as an Educational Resource                       | 3       |
  - ED 402 - Methods of Teaching in the Secondary School                | 3       |
  - ED 430 - Multicultural Teaching Techniques                          | 3       |
- **Student Teaching**
  - ED 453 - Secondary Student Teaching                                 | 12      |
  - (Candidates who have successfully taught in secondary schools may request a reduced student teaching experience. Contact the Office of Clinical Practices for further information.)

- **Minimum credits required:** 130
X-CED Secondary Certification Program

[For non-Fairbanks campus students who already hold a baccalaureate degree in a certifiable teaching subject area.]

Foundation/Theory Courses

PSY 240 — Developmental Psychology in Cross-Cultural Perspective

ED 201 — Introduction to Education

ED 330 — Diagnosis and Evaluation of Learning

ED 375 — The Exceptional Learner

Education Foundation Elective (ED 345, 346, 350, 360, 455)

Methods Courses

ED 402 — Methods of Teaching in the Secondary School

ED 407 — Reading Strategies for Secondary Teachers

ED 424 — Small High School Programs

or ED 425 — Community as an Educational Resource

ED 430 — Multicultural Teaching Techniques

Student Teaching

ED 453 — Secondary Student Teaching

(Candidates who have successfully taught full-time in secondary schools may request a reduced student teaching experience. Contact the Office of Clinical Practice for further information.)

Minimum credits required: 120

International Exchange Programs

The College of Rural Alaska offers two international exchange programs, one with the Soviet Union and one with Japan. Both programs offer students an excellent opportunity to study and teach abroad. The Soviet Exchange Program is with Magadan State Pedagogical Institute, and allows a short term exchange (3 to 4 weeks) and a long term exchange (one semester or one academic year). The Japan Exchange Program is with Hokkaido University of Education in Sapporo, Japan. During the one month exchange, UAF students who have completed student teaching will complete a three-week teaching internship in Japanese schools and participate in an orientation and program debriefing at Hokkaido University. Students interested in these programs are encouraged to begin language study in the appropriate language as early as possible. Please contact the Department of Education for further information on these programs.

M.Ed. Degree

This program offers several options from which a person selects an area of specialization. Inquiries concerning options and the specific requirements of each option should be directed to the Department of Education, Coordinator of Graduate Programs.

Electrical Engineering

School of Engineering
Department of Electrical Engineering

Degrees: B.S., M.E.E., M.S.

Minimum Requirements for Degrees: B.S. — 133 credits; M.S. — 30 additional credits; M.E.E. — 32 additional credits

Electrical engineering encompasses the areas of computer applications and design, electrical power transmission and distribution, telecommunications and electronics. The electrical engineer designs and oversees the construction, installation and maintenance of electrical systems providing light, heat and power. Engineers design the communication systems of telephone, radio and television, as well as the transistors and integrated circuits used in these systems. People trained in computer engineering automate businesses, factories, pipelines and refineries; and design control systems and computers which guide trains, planes and space vehicles. Even the test devices and tools of investigation — x-ray, microscope, electron microscope, in biology, in geology and other sciences — are today largely electronic.

The scope of electrical engineering has expanded tremendously in recent years. Many developments have been important in this expansion, including control theory, environmental monitoring, communications theory, new geophysical instrumentation, extra-high voltage power transmission, medical electronics, plasmas, magnetohydrodynamics, integrated circuits, satellites, and mini and microcomputers. These processes in the extraction, transportation and refining of petroleum products are largely the responsibility of the electrical and computer engineer. Development of techniques for utilizing new energy sources presents a challenge, requiring much imagination and research. Advanced training in engineering science and mathematics is required for creative work in these areas.

The curriculum is designed to insure that basic fundamentals are learned, as well as specialized skills. The practical needs of engineers who plan to enter practice immediately upon graduation, as well as the theoretical background needed for individuals planning to pursue graduate studies, have been taken into account in our program. Candidates for the bachelor of science degree will be required to take the State of Alaska Engineer-in-Training Examination in their general field.

Requirements

Electrical Engineering — B.S. Degree

1. Complete the general university requirements.

2. Complete the following degree and program (major) requirements. Students must plan their elective courses in consultation with their electrical engineering faculty advisor, and all elective courses must be approved by their electrical engineering faculty advisor. At least 6 of the 16 social science and humanities elective credit must be: (a) above the 100 level; or (b) advanced courses in a 100 level sequence. Sufficient depth in at least one of the areas must be demonstrated by evidence of a sequence of courses. This sequence must be approved by the students' departmental advisor.

First Year

Fall Semester

ENGL 111X — Methods of Written Communication

MAT 202 — Calculus

PHYS 211 — General Physics

ES 101 — Descriptive Geometry for Engineers

Perspectives on the Human Condition

CHEM 105 — General Chemistry

Spring Semester

ENGL 111X or 141X

MAT 203 — Calculus

PHYS 211 — General Physics

EE 102 — Intro. to Electrical Engineering

CHEM 106 — General Chemistry

Perspectives on the Human Condition

Second Year

Fall Semester

MAT 202 — Calculus

PHYS 211 — General Physics

ES 201 — Computer Techniques

EE 203 — Fund. of Elec. Engineering

Perspectives on the Human Condition

Spring Semester

MAT 302 — Differential Equations

CHEM 301 — Physical Chemistry

EE 208 — Mechanics

EE 204 — Fund. of Elec. Engineering

Third Year

Fall Semester

EE 333 — Physical Electronics

EE 334 — Circuit Theory

Approved Math Elective**

Perspectives on the Human Condition

Option I: Communications

EE 311 — Applied Engineering Electromagnetics

EE 331 — High Frequency Lab

Option II: Power and Control

EE 303 — Electrical Machines

Option III: Computer Engineering

EE 442 — Digital Syst. Anal. & Design

Spring Semester

EE 334 — Electronic Circuit Design

EE 335 — Engineering Signal Analysis

ENGL 211X — Intermediate Exposition, with Modes of Literature or

ENGL 213X — Intermediate Exposition

EE 471 — Fundamentals of Automatic Control

Option I: Communications

EE 312 — Electromagnetic Waves and Devices

EE 322 — Electromagnetics Laboratory

Option II: Power and Control

EE 404 — Electric Power Systems

Option III: Computer Engineering

EE 443 — Digital Systems Analysis and Design

Fourth Year

Fall Semester

EE 334 — Electronic Circuit Design

EE 335 — Engineering Signal Analysis

ENGL 211X — Intermediate Exposition, with Modes of Literature or

ENGL 213X — Intermediate Exposition

EE 471 — Fundamentals of Automatic Control

Option I: Communications

Approved Engineering Science Elective***

EE 303 — Electrical Machinery

EE 442 — Digital Systems Analysis and Design

EE 461 — Communications Systems

Option II: Power and Control

Approved Engineering Science Elective***

Eloctricnl Writing -

EE Must

EE

EE

Approved EE Engineering Science

• Electrical Engineering - electronic and environmental instrumentation, electric energy systems, electromagnetic wave propagation, satellite communications, digital and physical electronics, and microcomputer applications including remote biomedical and environmental instrumentation, electric energy system analysis, electric power quality improvement, geomagnetic storm interaction with electric energy systems, system identification and simulation and digital signal processing.

Graduate students whose goal is broad professional practice will ordinarily choose the M.E.E. program, those who wish to emphasize research and advanced specialized study usually elect the M.S. degree program, which includes a thesis.

For complete information on the graduate programs in Electrical Engineering, see the UAF Graduate Catalog.

Engineering Management

School of Engineering Department of Engineering and Science Management

Degrees: M.S.
Minimum Requirements for Degrees: 33 credits (beyond a bachelor's degree in an engineering field)

The engineering management curriculum is designed for graduate engineers who will hold executive or managerial positions in engineering, construction, industrial, or governmental organizations. It includes human relations, financial, economic, quantitative, technical, and legal subjects useful in solving problems of management. The curriculum includes graduate-level core courses in the subjects named above, plus additional course work either directed toward special problems such as arctic engineering or in one of the more general fields of engineering through projects or research in the application of management principles. In addition to an undergraduate degree, a candidate should have had on-the-job experience in engineering.

Candidates for the engineering management degree must have a previous degree in an engineering discipline. (See also "Science Management").

For complete information of the graduate program in engineering management, see the UAF Graduate Catalog.

English

College of Liberal Arts
Department of English

Degrees: B.A., M.A., M.F.A.
Minimum Requirements for Degrees: B.A. — 130 credits; M.A. — 30 additional credits; M.F.A. — 45 additional credits

The work of the Department of English includes the two functions traditionally associated with the discipline — teaching basic and advanced courses in writing and offering survey and advanced courses in English. American and world literature both to English majors and minors and to students in other fields who may choose the courses as electives. In addition, the department offers courses in English linguistics and Alaskan literature.

Requirements

English — B.A. Degree
A. Emphasis: Literature
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major): requirement: 36 credits in English besides English 111X and English 211X or 213X, including:

   a. ENGL 301 — Continental Literature in Translation: From the Ancient World through the Renaissance

   b. ENGL 319 — Literary Criticism

   c. One course from the following:

      ENGL 403 — American Renaissance
      ENGL 404 — American Realism
      ENGL 405 — British Writers of the 19th Century: Romantic Period
      ENGL 406 — British Writers of the 19th Century: Victorian Period
      ENGL 407 — English Writers of the 19th Century: Restoration and Neo-Classical Period
      ENGL 408 — American Origins
   
   d. ENGL 422 or 425 — Shakespeare

   e. One course from the following:

      ENGL 316 — Modern English Grammar
      ENGL 462 — Applied English Linguistics
      ENGL 472 — History of the English Language

   f. Four courses chosen from 300-400 levels in English with at least two courses on 400 level

3. Minimum Credits Required

B. Emphasis: Writing
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major): requirement: 36 credits in English besides English 111X and English 211X or 213X including:

   a. b. c. and d as listed in the requirements for a major with emphasis on literature

   e. Two courses from the following:

      ENGL 444 — Fiction in Translation
      ENGL 445 — 20th Century Drama: From Chekhov to Ionesco
      ENGL 446 — Major Modern and Contemporary Poetry
      ENGL 447 — 20th Century British Prose
      ENGL 448 — 20th Century American Prose
      ENGL 452 — The British Novel to 1960

   f. ENGL 313 — Writing Non-Fiction Prose
      ENGL 371 — Intermediate Creative Writing

   g. One course chosen from 300-400 English Department Courses

3. Minimum Credits Required

(907) 474-7103

(907) 474-6121

(907) 474-7103

(907) 474-7103
Environmental Quality Engineering and Science

School of Engineering
Department of Civil Engineering

Degrees: M.S.
Minimum Requirements for Degree: 30 credits (beyond a bachelor's degree)

The environmental quality engineering curriculum is administered through the civil engineering department and is designed for graduate engineers and science majors who will pursue careers in the areas of water supply, treatment, and distribution; waste treatment, stream pollution, air pollution, solid waste disposal, hazardous and toxic waste management, and environmental impact evaluation. Consideration is given for broad study of the environment, prevention and abatement of quality deterioration, and solutions to environmental problems. Graduates will be prepared to hold positions in federal, state, and municipal organizations as well as in consulting engineering offices. For students having non-engineering degrees, an interdisciplinary program is available leading to the master of science in environmental quality science.

For complete information on the graduate program in environmental quality engineering and science, see the UAF Graduate Catalog.

Eskimo

College of Liberal Arts
Department of Alaska Native Languages

Degree: B.A.
Minimum Requirements for Degree: 130 credits

Requirements

Inupiaq Eskimo - B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:

ESK 111-112 - Elementary Inupiaq Eskimo
ESK 211-212 - Intermediate Inupiaq Eskimo
ANL 215 - Eskimo-Aleut Languages
ESK 417 - Advanced Inupiaq Eskimo
LING 101 - The Nature of Language
or ANS 320 - Language and Culture

Complete three of the following:
ANL 387 - Bilingual Methods and Materials
ANTH 242 - Native Cultures of Alaska
ANTH 380 - Peoples of Alaska Southwest
ANTH 381 - Inupiaq and Yup'ik Peoples
HIST 110 - History of Alaska Natives
PS 263 - Alaska Native Politics
ENGL 349 - Narrative Art of Alaska Native Peoples

MINOR in Eskimo: A minor in Eskimo requires 15 credits in Eskimo.

Financial Institutions Management

School of Career and Continuing Education
Business Systems and Technology Department

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

The financial institutions management program is designed to meet the specific training needs of local financial institutions. This program was developed with the assistance of local industry leaders and representatives from the American Institute of Banking. Therefore, the associate of applied science degree parallels the skills, training, and educational standards set by the AIB.

The financial institutions management degree curriculum focuses on business and banking in addition to some specific technical areas. Graduates of this program will be prepared to pursue many career paths in financial institutions management.
Requirements

Financial Institutions Management — A.A.S Degree

1. Complete the following general university and A.A.S. requirements: Credits
   Communications:
   ENGL 111X and ENGL 211X, 212X, or 213X
   SPC 131X or 141X
   Mathematics or Natural Science:
   A math or natural science course at the 100 level or above
   Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition
   ABUS 142 — Office Accounting I
   ABUS 160 — Principles of Banking or
   ABUS 161 — Foundations and Structures of Credit Unions
   ABUS 163 — Consumer Lending
   ABUS 179 — Fundamentals of Supervision
   ABUS 181 — Law and Banking Applications
   ABUS 224 — Money and Banking
   ABUS 241 — Business Law
   SUBTOTAL ...
   Total: 12
   2. Complete the following major degree requirements:
   ABUS 166 — Residential Mortgage Lending
   ABUS 167 — Branch Management
   ABUS 223 — Real Estate Finance
   ABUS 234 — Financial Counseling
   ABUS 244 — Loan Officer Development
   ABUS 258 — Analytical Statements
   SUBTOTAL ...
   Total: 24
   3. Complete the following major specialty electives:
   Select 12 credits from the following:
   ABUS 169 — Real Estate Appraisal
   ABUS 240 — Mortgage Brokering
   ABUS 245 — Mortgage Originations
   ABUS 271 — Finance
   ABUS 272 — Investment Analysis
   SUBTOTAL ...
   Total: 24
   4. General Elective Credit
   Dege Total: 60

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Fire Science

School of Career and Continuing Education
Service Industry Department

Certificate; Degree: A.A.S.

Minimum Requirements for Certificate — 30 credits; for Degree — 60-61 credits

The Fire Science Program gives students a fundamental working knowledge of the various aspects of fire prevention and protection in both urban and wildlife areas. It also serves as an in-service program for personnel already employed by fire protection agencies and enhances their opportunities for advancement. Associate degrees and certificate programs in municipal fire control and wildlands fire control are offered.

Requirements

Municipal Fire Control — A.A.S. Degree

1. Complete the following general university and A.A.S. requirements: Credits
   Communications:
   ENGL 111X and ENGL 211X, 212X, or 213X
   SPC 131X or 141X
   Mathematics or Natural Science:
   A math or natural science course at the 100 level or above
   Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition
   ABUS 142 — Office Accounting I
   ABUS 160 — Principles of Banking or
   ABUS 161 — Foundations and Structures of Credit Unions
   ABUS 163 — Consumer Lending
   ABUS 179 — Fundamentals of Supervision
   ABUS 181 — Law and Banking Applications
   ABUS 224 — Money and Banking
   ABUS 241 — Business Law
   SUBTOTAL ...
   Total: 12
   2. Complete the following major degree requirements:
   FSCI 101 — Introduction to Fire Science
   FSCI 102 — Fire Administration
   FSCI 105 — Fundamentals of Fire Prevention
   FSCI 111 — Fire Company Organization and Management
   FSCI 117 — Rescue Practices
   FSCI 202 — Fire Hydraulics
   FSCI 204 — Hazardous Materials I
   FSCI 205 — Hazardous Materials II
   EMTT 103 — Emergency Trauma Training (ETT)
   First Responder
   or
   EMTT 119 — Emergency Medical Technician I
   SUBTOTAL ...
   Total: 24
   3. Complete 6 credits from the following major elective courses:
   EMTT 102 — Emergency Medical Technician Refresher
   EMTT 121 — Emergency Medical Technician II
   FSCI 156 — Fire Planning Function
   FSCI 161 — Fire Logistics Functions
   FSCI 162 — Methods of Instruct for Fire Service Training
   FSCI 204 — Hazardous Materials II
   FSCI 256 — Fire Planning and Multiple Use Management
   FSCI 258 — Prescribed Burning and Fuels Management
   FSCI 260 — Fire Research and Development
   FSCI 270 — Incident Command Function
   SUBTOTAL ...
   Total: 6
   4. Complete 15 general electives credits

DEGREES AND PROGRAMS—FIRE SCIENCE / 77

Subtotal: 24-25

3. Complete 6 credits from the following major specialty electives:
   EMTT 102 — Emergency Medical Technician Refresher
   EMTT 121 — Emergency Medical Technician II
   FSCI 119 — Fire Apparatus and Equipment
   FSCI 121 — Introduction to Fire Chemistry and Physics
   FSCI 127 — Fire Investigation
   FSCI 151 — Wildland Fire Control I
   FSCI 152 — Wildland Fire Control II
   FSCI 162 — Methods of Instruct for Fire Service Training
   FSCI 201 — Hazardous Materials II
   FSCI 206 — Building Construction for Fire Protection
   FSCI 208 — Fire Service Records and Reports
   FSCI 212 — Building and Fire Codes
   FSCI 214 — Fire Protection Equipment and Systems
   SUBTOTAL ...
   Total: 6

4. Complete 15 general electives credits

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

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Municipal Fire Control — Certificate

Suggested Course Sequence

Fall Semester
   Credits
   FSCI 101 — Introduction to Fire Science
   FSCI 102 — Fire Administration
   FSCI 105 — Fundamentals of Fire Prevention
   FSCI 107 — Fire Tactics and Strategy
   EMTT 103 — Emergency Trauma Training (ETT)
   First Responder

Spring Semester
   Credits
   FSCI 111 — Fire Company Organization and Management
   FSCI 117 — Rescue Practices
   FSCI 202 — Fire Hydraulics
   FSCI 204 — Hazardous Materials I
   Major specialty electives
   SUBTOTAL ...
   Total: 15-16

Subtotal: 44-45

Wildlands Fire Control — A.A.S. Degree

1. Complete the following general university and A.A.S. requirements: Credits
   Communications:
   ENGL 111X and ENGL 211X, 212X, or 213X
   SPC 131X or 141X
   Mathematics or Natural Science:
   A math or natural science course at the 100 level or above
   Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition
   ABUS 142 — Office Accounting I
   ABUS 160 — Principles of Banking or
   ABUS 161 — Foundations and Structures of Credit Unions
   ABUS 163 — Consumer Lending
   ABUS 179 — Fundamentals of Supervision
   ABUS 181 — Law and Banking Applications
   ABUS 224 — Money and Banking
   ABUS 241 — Business Law
   SUBTOTAL ...
   Total: 12
   2. Complete the following major degree requirements:
   EMTT 103 — Emergency Trauma Training (ETT)
   First Responder
   or
   EMTT 119 — Emergency Medical Technician I
   SUBTOTAL ...
   Total: 15-16

Subtotal: 44-45

Wildlands Fire Control — Certificate

Suggested Course Sequence

Fall Semester
   Credits
   FSCI 101 — Introduction to Fire Science
   FSCI 102 — Fire Administration
   FSCI 105 — Fundamentals of Fire Prevention
   FSCI 107 — Fire Tactics and Strategy
   EMTT 103 — Emergency Trauma Training (ETT)
   First Responder

Spring Semester
   Credits
   FSCI 111 — Fire Company Organization and Management
   FSCI 117 — Rescue Practices
   FSCI 202 — Fire Hydraulics
   FSCI 204 — Hazardous Materials I
   Major specialty electives
   SUBTOTAL ...
   Total: 15-16

Subtotal: 44-45

Certificate Total 30

Subtotal: 24-25

3. Complete 6 credits from the following major elective courses:
   EMTT 102 — Emergency Medical Technician Refresher
   EMTT 121 — Emergency Medical Technician II
   FSCI 156 — Fire Planning Function
   FSCI 161 — Fire Logistics Functions
   FSCI 162 — Methods of Instruct for Fire Service Training
   FSCI 204 — Hazardous Materials II
   FSCI 256 — Fire Planning and Multiple Use Management
   FSCI 258 — Prescribed Burning and Fuels Management
   FSCI 260 — Fire Research and Development
   FSCI 270 — Incident Command Function
   SUBTOTAL ...
   Total: 6

4. Complete 15 general electives credits

Degree Total: 60-61

Subtotal: 24-25

3. Complete 6 credits from the following major specialty electives:
   EMTT 102 — Emergency Medical Technician Refresher
   EMTT 121 — Emergency Medical Technician II
   FSCI 119 — Fire Apparatus and Equipment
   FSCI 121 — Introduction to Fire Chemistry and Physics
   FSCI 127 — Fire Investigation
   FSCI 151 — Wildland Fire Control I
   FSCI 152 — Wildland Fire Control II
   FSCI 162 — Methods of Instruct for Fire Service Training
   FSCI 201 — Hazardous Materials II
   FSCI 206 — Building Construction for Fire Protection
   FSCI 208 — Fire Service Records and Reports
   FSCI 212 — Building and Fire Codes
   FSCI 214 — Fire Protection Equipment and Systems
   SUBTOTAL ...
   Total: 6

4. Complete 15 general electives credits

Degree Total: 60-61
Note: Major electives and general electives must be approved by the student's advisor.

*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Wildlands Fire Control — Certificate

Suggested Course Sequence

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTT 103 — Emergency Trauma Training (ETT) First Responder</td>
<td>3</td>
</tr>
<tr>
<td>or EMTT 119 — Emergency Medical Technician I</td>
<td>4</td>
</tr>
<tr>
<td>or FSC 151 — Wildfire Control I</td>
<td>3</td>
</tr>
<tr>
<td>or FSC 158 — Fire Operations Functions</td>
<td>3</td>
</tr>
<tr>
<td>or FSC 181 — Fire Logistics Functions</td>
<td>3</td>
</tr>
<tr>
<td>Major electives</td>
<td>3</td>
</tr>
<tr>
<td>Subtotal</td>
<td>14-15</td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSC 158 — Wildland Fire Behavior</td>
</tr>
<tr>
<td>FSC 157 — Air Operations Safety</td>
</tr>
<tr>
<td>FSC 252 — Wildland Fire Prevention, Enforcement and Investigation</td>
</tr>
<tr>
<td>FSC 254 — Wildland Fire Business Management</td>
</tr>
<tr>
<td>Certificate Total</td>
</tr>
</tbody>
</table>

Fisheries

School of Fisheries and Ocean Sciences
Program in Fisheries

Degree: B.S., M.S.

Minimum Requirements for Degrees: B.S. — 130 credits; M.S. — 30 additional credits

The fisheries undergraduate curriculum program is intended to provide broad basic education and training. Holders of the bachelor's degree will be qualified to enter the management, law enforcement, and public information education phases of fisheries work. A number of subarctic streams and lakes are within easy reach. Main access to the marine environment from the Fairbanks campus is in Prince William Sound and Cook Inlet. The Juneau Center for Fisheries and Ocean Science houses the UAF Fisheries Science Program in southeast Alaska.* ICFOS has well-equipped labs and a 42-foot research vessel. It is located near the Auke Bay National Marine Fisheries Laboratory, Faculty with ICFOS were associated with the University of Alaska Juneau (now the University of Alaska Southeast) prior to this year. Students matriculating at Juneau can also register for UAS courses.

Students from both locations have opportunities for association with personnel of federal and state conservation agencies and these agencies hire a number of students for summer field work.

* Juneau students should also reference the University of Alaska Southeast catalog.

Requirements

Fisheries — B.S. Degree

1. Complete the general university and B.S. degree requirements.
2. Complete the following degree and program (major) requirements:

<table>
<thead>
<tr>
<th>A. Fisheries Core Courses:</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General (32 credits)</td>
<td></td>
</tr>
<tr>
<td>NRM 101 — Conservation of Natural Resources</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 114 — Research Writing</td>
<td>3</td>
</tr>
<tr>
<td>STAT 200 — Elementary Prob. and Stat.</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 105,106 — General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>&quot;MATH 232, 273 — Intro. to Calculus for Life. Sci.</td>
<td>3</td>
</tr>
<tr>
<td>ECON 235 — Natural Resource Econ.</td>
<td>3</td>
</tr>
<tr>
<td>CS 201 — Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 205 — Elements of Physical Geography</td>
<td>3</td>
</tr>
<tr>
<td>Biology 107 credits</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 105,106 — Fundamentals in Biol. I and II</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 271 — Principles of Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 210 — Animal Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 362 — Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 384 — Biol. of Freshwater Fish of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 427 — Ichthyology</td>
<td>3</td>
</tr>
<tr>
<td>Fisheries (9 credits)</td>
<td></td>
</tr>
<tr>
<td>BIOL 473 — Limnology</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 328 — Biology of Marine Organisms</td>
<td>3</td>
</tr>
<tr>
<td>FISH 420 — Intro. to Fisheries Science</td>
<td>3</td>
</tr>
<tr>
<td>FISH 430 — Fisheries Management</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 200, 201, &amp; 202 — Calculus</td>
<td></td>
</tr>
</tbody>
</table>

B. Electives:

Take one course from each of the following groups of courses:

<table>
<thead>
<tr>
<th>Group 1 (3-5 credits)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 342 — Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 307 — Parasitology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 422 — Bacteriology and Immunology</td>
<td>5</td>
</tr>
<tr>
<td>Group 2 (3-5 credits)</td>
<td></td>
</tr>
<tr>
<td>BIOL 222 — Biology of the Vertebrates</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 205 — Vertebrate Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 317 — Comparative Anatomy of Vertebrates</td>
<td>5</td>
</tr>
<tr>
<td>Group 3 (3 credits)</td>
<td></td>
</tr>
<tr>
<td>BIOL 472 — Communities and Ecosystems</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 471 — Population Ecology</td>
<td>3</td>
</tr>
<tr>
<td>Group 4 (1-3 credits)</td>
<td></td>
</tr>
<tr>
<td>BIOL 355 — Invertebrate Zoology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 406 — Entomology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 407 — Aquatic Entomology</td>
<td>3</td>
</tr>
<tr>
<td>Group 5 (3 credits)</td>
<td></td>
</tr>
<tr>
<td>BIOL 480 — Water Pollution Biology</td>
<td>3</td>
</tr>
<tr>
<td>NRM 370 — Introduction Watershed Management</td>
<td>3</td>
</tr>
</tbody>
</table>

C. Option — Complete the requirements for one of the following options:

Research Option:

Choose 6-12 credits from the courses listed below:

| STAT 401 — Regression and Analysis of Variance (4 credits) | |
| STAT 402 — Scientific Sampling (3 credits) | |
| CHEM 212 — Intro. Quant. Analysis (4 credits) | |
| CHEM 321-322 — Organic Chem. (3 credits) | |
| CHEM 324 — Organic Lab. (3 credits) | |
| CS 302 — Computer Science II (3 credits) | |
| GEOS 304 — Geomorphology (3 credits) | |
| PHYS 103-104 — College Physics (4/4 credits) | |

In addition, any electives needed to bring total credits to 130.

Management Option:

1. Take one of the following (3 credits):

| NRM 400 — Natural Resources Policies | |
| NRM 401 — Natural Resources Law | |

2. Take four courses from the following (12 credits):

| GEOS 302 — Geography of Alaska | |
| GEOS 402 — Man and Nature | |
| "MATH 101 — Intro. to Mass Communication | |
| "ECON 438 — The Economics of Fisheries Management | |

3. Take one of the following (2-3 credits):

| WLF 403 — Wildlife Management Techniques | |
| WLF 417 — Wildlife Management — Forest and Tundra | |
| WLF 419 — Waterfowl and Wetlands Ecology and Management | |

In addition, any electives needed to bring total credits to 130.

Minimum credits required: 130

*Note prerequisite.

**Maximum of 3 credits may be used to satisfy the management option.

Bachelor of science candidates are strongly urged to obtain work experience in fisheries-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers. Fisheries undergraduate students will be asked each fall to describe their work experience of the previous year.
Fisheries — M.S. Degree

For complete information on the graduate program in fisheries, see the UAF Graduate Catalog.

Food Science and Technology

University of Alaska Fairbanks/
Oregon State University
Cooperative Program

(907) 474-7289

Food science and technology is concerned with the scientific and engineering principles as applied to processing and preserving food. Food technologists work in the seafood industry as quality control supervisors, technical sales representatives, and mid-to-top level managers. The food industry is the largest employer in the United States, and more job openings are available for food technologists than there are people to fill them.

For students interested in the field of food technology, UAF’s School of Fisheries and Ocean Sciences offers a program in cooperation with Oregon State University leading to a Bachelor of Science degree in Food Science and Technology. Students enrolled in this program complete their freshman and sophomore years at UAF, then transfer to Corvallis, Oregon to complete their junior and senior years and earn a Bachelor of Science degree from Oregon State University under the Western Undergraduate Exchange (WUE) Program. The academic program combines principles and concepts acquired in the life sciences, chemistry, physics, and engineering. The core curriculum at Oregon State University is approved by the Education Committee of the Institute of Food Technologists, the professional society of international food scientists.

For further information on this program, please contact UAP’s School of Fisheries and Ocean Sciences at (907) 474-7289.

Foreign Languages

College of Liberal Arts
Department of Foreign Languages and Literatures

(907) 474-7396

Degree: B.A.
Minimum Requirements for Degree: B.A. — 130 credits

In a shrinking world Americans increasingly need to communicate directly with other people in order to achieve mutual understanding. Whether it be Japanese or English, the language of a people embodies its unique culture and its way of thinking and feeling. Therefore, to know only one language is to think in only one way.

The study of foreign languages and literatures liberates the student from the confines of one culture.

Requirements

Foreign Language — B.A. Degree
1. Complete the general university and B.A. degree requirements.
2. Complete the following program (major) requirements:

<table>
<thead>
<tr>
<th>Option</th>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>LING 101 — Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or LING 216 — Languages of the World</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENGL 310 — Literary Criticism</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENGL 316 — Modern English</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HUM 411 — Dimensions of Literature</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>b. 6 credits in literature courses other than those of the field of</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>specialization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. 6 credits from among the following</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHIL 201 — Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>History: Once lower division and one upper division, or two upper</td>
<td></td>
</tr>
<tr>
<td></td>
<td>division courses related to the student’s language area</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ART 261 or 262 — History of World Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One course from the following as related to student’s language focus:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GEOG 305 — Geography of Europe (except U.S.S.R.)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GEOG 306 — Geography of the Soviet Union</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GEOG 311 — Geography of Asia</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GEOG 402 — Man and Nature</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>LING 101 — Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or LING 216 — Languages of the World</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or any foreign language for any of the following courses listed under</td>
<td></td>
</tr>
<tr>
<td></td>
<td>II. Major Requirements (two languages required) First Language</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(French, German, Russian or Spanish) above 100 level</td>
<td>24-26</td>
</tr>
<tr>
<td></td>
<td>Complete the following courses:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>201/202 — 6-8 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>301/302 — 6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>331/332 — 6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>347/348 — 6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second Language (Danish, French, German, Russian or Spanish) 201/202</td>
<td>12-14</td>
</tr>
<tr>
<td></td>
<td>301/302</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Where appropriate, courses listed under II may be counted toward</td>
<td></td>
</tr>
<tr>
<td></td>
<td>fulfillment of B.A. requirements listed under 2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foreign language majors may not substitute a language for any of the six</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CORE courses in Perspectives on the Human Condition.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foreign language majors are encouraged to spend one or both semesters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of their junior year in an exchange program appropriate to their</td>
<td></td>
</tr>
<tr>
<td></td>
<td>language focus.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Minimum credits required.</td>
<td>130</td>
</tr>
</tbody>
</table>

MINOR in Foreign Languages

A minor in foreign languages requires 15 credits, 12 of which must be at the 200 level or above.

Forestry

University of Alaska Fairbanks/
Northern Arizona University
Cooperative Program

(907) 474-5276

Accredited degree programs in forestry provide students with a foundation in the biological, social and physical sciences and professional education in forest sciences. The academic program is a blend of classroom, laboratory, and field work to develop skills for a professional career in forestry.

For students interested in pursuing an accredited degree in forestry, UAF’s School of Agriculture and Land Resources Management offers a program in cooperation with Northern Arizona University. Students enrolled in this program complete the first two years of their program at UAF, then transfer to Northern Arizona University’s forestry program to complete their junior and senior years. The forestry program at Northern Arizona University is accredited by the Society of American Foresters.

The pre-forestry program at UAF introduces students to land resources management and provides lower level courses common to most forestry curricula. Students desiring to transfer to a forestry degree program elsewhere should consult their faculty advisor before registering for classes. This will ensure a schedule that provides for the expedient transfer of credit.

Students who are considering forestry as a career choice should contact the curriculum coordinator within the School of Agriculture and Land Resources Management at (907) 474-5276 for further information.

General Science

College of Natural Sciences
Department of Physics

(907) 474-6198

Degrees: B.S., M.S.
Minimum Requirements for Degrees: B.S. — 130 credits; M.S. — 30 additional credits

The B.S. in General Science has been designed to provide a broad background in the Natural Sciences and to allow for specialization in at least two of the disciplines within the Natural Sciences as well as an
additional area of associated interest. This degree offers more breadth in the Natural Sciences than the other degree programs and may be classified as an interdisciplinary degree. Thus, one option available to a student in this program would be to select a minor in Education which would allow the student to earn a teaching certificate in General Science.

Requirements

**General Science — B.S. Degree**

1. Complete the general university requirements.
2. Complete the following degree and program (major) requirements:

**First Year**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>17 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111X — Methods of Written Communication</td>
<td>3</td>
</tr>
<tr>
<td>MATH 207-108 — Elementary Functions and Trigonometry</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 105X* — General Chemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

* PHYS 103X* — College Physics

| BIOL 105X* — Fundamentals of Biology | 4 |

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>15 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPC 131X or 141X</td>
<td>3</td>
</tr>
<tr>
<td>MATH 200 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 106X — General Chemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

* PHYS 104X* — College Physics

| BIOL 108X* — Fundamentals of Biology | 4 |

**Second Year**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>18 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 103X* — College Physics</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 105X* — General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>ECON 207X — Principles of Economics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 101X — The Dynamic Earth</td>
<td>3</td>
</tr>
<tr>
<td>Perspectives on the Human Condition</td>
<td>3</td>
</tr>
</tbody>
</table>

| ENGL 211X — Intermediate Exposition with Modes of Literature | 3 |
| or ENGL 213X — Intermediate Exposition | 3 |

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>16 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 104X* — College Physics</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 106X* — General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 112X — Historical Geology</td>
<td>4</td>
</tr>
<tr>
<td>Perspectives on the Human Condition</td>
<td>3</td>
</tr>
</tbody>
</table>

| Electives | 3 |

* PHYS 211-213 may substitute for PHYS 103-104 and CHEM 212 may substitute for CHEM 105-106.

**Third and Fourth Years**

By at least the beginning of his/her junior year, a student in General Science should decide upon his/her major and minor fields of interest. A B.S. degree requires the student to choose two majors or one major and two minors in selected fields of interest. A major requires the completion of at least 20 credits in addition to the foundation courses in the discipline. The first major must be selected from Biological Sciences, Chemistry, Geosciences, or Physics,

A student then has the option of selecting (1) a second major in biological sciences, chemistry, geosciences, physics, or mathematics or (2) 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, economics, or education (minimum course work required for certification). The minor must include 12 or more credits in addition to the foundation courses in that discipline.

A General Science student, after meeting with his/her General Science advisor, should contact the head of the major/minor department as early as possible to determine course requirements in that discipline. These courses will be determined by the department head of the discipline and will reflect the student's needs as well as the intent of the General Science program.

**Additional Information**

1. All prerequisites of courses elected must be met.
2. A grade of "C" or better must be attained in all courses for the major or minor.
3. One year of German or Russian is recommended.
4. Courses selected to complete the remaining general degree requirements must be the remaining required courses from Perspectives on the Human Condition section of the baccalaureate core.
5. A student does not need to take MATH 107-108 if he/she successfully completes MATH 200 with a grade of "C" or better.

**General Science — M.S. Degree**

1. Complete the general University and Master's Degree requirements.

2. Complete a minimum of 30 credits of approved courses. At least 24 credits, including thesis and/or research, must be at the 600 level.

The Department of General Science offers a M.S. in Biological Sciences, Chemistry, and Physics. This degree may be described as a "breadth" rather than a "depth" degree, and a candidate is ordinarily pursuing a course of study in which one of these disciplines is cooperating with at least one other discipline within the University. A prospective candidate must meet the general requirements for admission and the awarding of the degree. At least 21 credits must be earned in science and mathematics. At least 12 credits must be earned in the major discipline selected. A thesis (maximum of three credits) or project (no credit) must be completed in the major discipline. It is not intended that the individual courses comprising the program merely satisfy the credit requirements; each course should contribute to the specific aim of the candidate, and the thesis or project should reflect this aim.

For complete information on the graduate program in general science, see the UAF Graduate Catalog.

**Geography**

**College of Liberal Arts**

**Department of Geography**

**Degrees:** B.A., B.S.

**Minimum Requirements for Degrees:** B.A. — 120 credits; B.S. — 120 credits

The department offers undergraduate courses and degrees in geography and in geography and regional development. Geography provides an organized picture of the earth as a whole and of its interrelated regions and activities. It deals both with the natural resources of the earth and with man's use of them. Its methodology includes the observation, measurement, description, and analysis of places or areas— their likenesses, differences, interdependence and significance. Geography serves as a bridge between the physical sciences and the social sciences. At UAF, geography is offered as: (a) part of a broad cultural background in a liberal arts curriculum; (b) part of a comprehensive program in biological and earth sciences; (c) background for studies in economics, history, political science, and other social sciences; (d) preparation for teaching geography, earth science, or social science in elementary or secondary schools; (e) technical training for professional geographic work in government, business or industry; (f) preparation for further graduate study in geography, regional planning and related disciplines. Students majoring in geography may elect such advanced work in this and other departments as will provide a concentration either in physical science or in social science.

**Requirements**

**Geography — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:

A. Complete 33 credits in geography as follows:

| GEOG 101 — Introductory Geography | 3 |
| GEOG 203 — World Economic Geography | 3 |
| GEOG 305 — Geography of Europe (Except U.S.S.R) | 3 |
| GEOG 306 — Geography of the Soviet Union | 3 |
| GEOG 311 — Geography of Asia | 3 |
| GEOG 327 — Cold Lands | 3 |

Select three of the following regional courses:

| GEOG 202 — Geography of the U.S. and Canada | 3 |
| GEOG 302 — Geography of Alaska | 3 |
| GEOG 305 — Geography of Europe (Except U.S.S.R) | 3 |
| GEOG 306 — Geography of the Soviet Union | 3 |
| GEOG 311 — Geography of Asia | 3 |
| GEOG 327 — Cold Lands | 3 |

Select three of the following cultural courses:

| GEOG 402 — Man and Nature | 3 |
| GEOG 404 — Urban Geography | 3 |
| GEOG 405 — Political Geography | 3 |
| GEOG 309 — Cartography | 3 |
| GEOG 408 — Quantitative Research Techniques | 3 |

Geography elective
B. Approved electives to complete 120 credits.

**Geography — B.S. Degree**
1. Complete general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:
   A. Complete 33 credits in geography as follows:
      GEOG 101 — Introductory Geography or GEOG 103 — World Economic Geography ... 3
      GEOG 105 — Elements of Physical Geography ... 3
      GEOG 205 — Cartography ... 3
      GEOG 339 — Advanced Physical Geography ... 3
      GEOG 401 — Weather and Climate ... 3
      GEOG 402 — Man and Nature ... 3
      GEOG 408 — Quantitative Research Techniques ... 3
      GEOG 492 — Seminar ... 3
      Select two of the following regional courses:
      GEOG 202 — Geography of the U.S. and Canada (3)
      GEOG 302 — Geography of Alaska (3)
      GEOG 305 — Geography of Europe (Except U.S.S.R.) (3)
      GEOG 306 — Geography of the Soviet Union (3)
      GEOG 311 — Geography of Asia (3)
      GEOG 337 — Cold Lands (3) ... 6
      Geography elective ... 3
   B. Approved electives to complete 120 credits.

MINOR in Geography:
A minor in geography requires 15 credits in geography including GEOG 101 or 103 and 205.

Geological Engineering

School of Mineral Engineering
Department of Mining and Geological Engineering

Degrees: B.S., M.S.
Minimum Requirements for Degree: B.S. — 131 credits plus 6 credits field course, M.S. — 30-33 additional credits.

Geological engineering is a branch of engineering dealing with the application of geology. Geologists 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. Candidates for the bachelor of science degree in geological engineering will be required to take a comprehensive exam in their general field. (Completion of the State of Alaska Engineering-in-Training examination will satisfy the requirement). The State of Alaska Engineering-in-Training examination is a first step toward registration as professional engineers.

Graduates of the program are employed by industry, consulting companies, and government agencies. Students may initiate the geological engineering program in Anchorage and transfer to Fairbanks upon completion of the freshman and sophomore years. Such students should be in communication with a faculty member of the Department of Mining and Geological Engineering, UAF.

Requirements

Geological Engineering — B.S. Degree
1. Complete the general university requirements.
2. Complete the following degree and program (major) requirements:
   First Year
   Fall Semester 17 Credits
   GE 101 — Introduction to Geological Engineering ... 1
   ENGL 211X — Methods of Written Communications ... 3
   MATH 200 — Calculus ... 4
   CHEM 105X — General Chemistry ... 4
   ES 101 — Descriptive Geometry for Engineers ... 2
   Perspectives on the Human Condition ... 3
   Spring Semester 17 Credits
   ENGL 111X or 141X ... 3
   MATH 201 — Calculus ... 4
   GE 261 — General Geology for Engineers ... 3
   CHEM 106X — General Chemistry ... 4
   Perspectives on the Human Condition ... 3
   Second Year
   Fall Semester 10 Credits
   MATH 202 — Calculus ... 4
   GEOG 103 — World Economic Geography ... 3
   PHYS 211X — General Physics ... 4
   Spring Semester 17 Credits
   ENGL 211X or 213X — Intermediate Exposition ... 3
   MIN 202 — Mine Surveying ... 3
   Spring Semester 17 Credits
   ES 201 — Computer Techniques ... 3
   PHYS 212X — General Physics ... 4
   ES 308 — Mechanics ... 4
   GE 315 — Geologic Engineering II ... 4
   MATH 302 — Differential Equations ... 3

Third Year
Fall Semester 16 Credits
ES 331 — Mechanics of Materials ... 3
ES 341 — Fluid Mechanics ... 4
GE 365 — Geologic Engineering III ... 4
GE 375 — Terrain Analysis ... 3
GEOS 321 — Sedimentology ... 3

Spring Semester 16 Credits
GEOS 314 — Structural Geology ... 4
GE 372 — Rock Engineering ... 3
MIN 370 — Rock Mechanics* or CE 326 — Intro to Geological Engineering ... 3
STAT 200 — Elementary Probability & Statistics ... 3
Perspectives on the Human Condition ... 3

Fourth Year
Fall Semester 15 Credits
GE 405 — Exploration Geophysics ... 4
GE 420 — Subsurface Hydrology ... 3
MIN 408 — Mineral Valuation and Economics ... 2
GE 480 — Geologic Engineering II ... 4
Technical Elective** ... 3

* Either MIN 370 or CE 326 is required. Selection is dependent upon the student’s interest and professional orientation.

**Technical electives are dependent upon professional interest and selected by the student in consultation with his or her advisor and approved by the department. Technical electives are selected from a list of approved technical electives from the Geological Engineering and other programs.

Geological Engineering — M.S. Degree

The graduate program allows for awarding the master of science degree in geological engineering. The degree consists of a core program and electives in either geotechnical engineering or exploration engineering. University policy pertaining to graduate study leading to a master’s degree apply as approved by the student’s advisor and the Department of Mining and Geological Engineering Faculty.

For complete information on the graduate program in geological engineering, see the UAF Graduate Catalog.

Geology

College of Natural Sciences
Department of Geology and Geophysics

Degrees: B.S., M.S., Ph.D.
Minimum Requirements for Degrees: B.S. — 130-136 credits including summer field courses; M.S. — 30 additional credits, including thesis; Ph.D. (open)

Graduates in geology will have broad backgrounds in the earth sciences with firm foundations in mathematics, physics, and chemistry. There are many options available in the geological sciences, and the suggested curricula are intended to be flexible enough to allow the students to pursue their own emphases in the junior and senior years. The bachelor’s degree should prepare one for positions with industry or government, or for graduate studies. Graduate programs are tailored around minimal core course requirements (M.S.) only to the special research and study interest of the student. In addition to courses listed under the geology and geophysics program, students should check the course listings under the School of Mineral Engineering and the Marine Science program.

All serious students of the geological sciences at UAF should note that in addition to the facilities available directly through the instructional program, there are active research laboratories in the fields of
seismology, volcanology, palaeomagnetism, isotopic geochronology, glaciology and ice physics which are housed in the Geophysical Institute (see also Geophysical Institute 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. There are about 40 professional geoscientists in residence on campus, and graduate students normally participate in the ongoing research of these professionals. Similar possibilities exist for the motivated undergraduate.

Requirements

Geology — B.S. Degree
1. Complete the general university requirements.

2. Complete the following degree and program (major) requirements:

   ENGL 111X — Methods of Written Communication
   ENGL 211X — Intermed. Expos. with Modes of Literature
   SPCE 131X or 141X
   Mathematics (Select appropriate series)
   11 or 15

   For Geology options: MATH 200-201-Calculus (8), and STAT 300-Statistics (4)
   For Geophysics Option: MATH 200, 201, 202-Calculus (11), MATH 301-Advanced Calculus (3)
   PHYS 211X-212X — General Physics (PHYS 103X-104X may be taken for General Geology Option)
   CHEM 103X-108X — General Chemistry
   Computer literacy equivalent to CS 201
   0-3

3. For General Geology, Economics Geology and Petroleum Geology options, complete the following requirements:

   Geology Core Courses:
   GEOS 101X — The Dynamic Earth
   GEOS 112X — Historical Geology
   GEOS 213 — Mineralogy
   GEOS 214 — Petrology and Petrography
   GEOS 304 — Geology of Disease (or other topics in the above group)
   GEOS 314 — Structural Geology
   GEOS 322 — Stratigraphy and Sedimentation
   GEOS 351 — Field Geology
   GEOS 401 — Invertebrate Paleontology
   GEOS 430 — Statistics and Data Analysis
   GEOS 470 — Petroleum Geology
   Electives (professional & general) to bring total to 130

4. For the Geophysics Option, complete the following requirements:

   GEOS 112X — Historical Geology
   GEOS 214 — Petrology and Petrography
   GEOS 304 — Geology of Disease
   GEOS 314 — Structural Geology
   GEOS 321 — Sedimentology
   GEOS 322 — Stratigraphic Principles
   GEOS 419 — Continuum Mechanics
   GEOS 422 — Remote Sensing
   GEOS 423 — Paleomagnetism
   GEOS 430 — Statistics and Data Analysis
   ES 341 — Fluid Mechanics
   Complete either Plan A or Plan B

Plan A — Exploration Geophysics:
Complete the following requirements:

   GEOS 410 — Potential Methods in Geophysics
   GEOS 411 — Interpretation of Geophysical Data
   GEOS 412 — Electrical Methods in Geophysics
   GEOS 451 — Field Geophysics
   Complete at least 6 credits from the following or from courses listed as options above that were not used:
   GEOS 351 — Field Geology
   GEOS 414 — Glaciology
   GEOS 422 — Remote Sensing
   GEOS 423 — Paleomagnetism
   GEOS 470 — Petroleum Geology
   GE 305 — Geological Engineering
   GE 372 — Rock Engineering
   PETE 302 — Formation Well Logging
   PHYS 312 — Mechanics II
   EE 341 — Computer Organization

Plan B — General Geophysics:
Complete at least one course from the following:

   GEOS 410 — Potential Methods in Geophysics
   GEOS 411 — Interpretation of Geophysical Data
   GEOS 412 — Electrical Methods in Geophysics
   Complete at least 12 credits from the following or from courses listed as options above that were not used:
   GEOS 351 — Field Geology
   GEOS 414 — Glaciology
   GEOS 422 — Remote Sensing
   GE 420 — Subsurface Hydrology
   PE 312 — Remote Sensing
   PHYS 333 — Physics of the Earth
   EE 341 — Computer Organization
   ME 441 — Heat and Mass Transfer
   MPR 416 — Emission Spectroscopy, X-ray Spectroscopy, Atomic
   Absorption
   Electives (professional or general) to bring total to 130

MINOR in Geology:
A minor in geology requires 12-16 credits of approved geosciences courses.

Geology — M.S., M.A.T., or Ph.D. Degrees

For complete information on the graduate programs in geology, see the UAF Graduate Catalog.

Geophysics

College of Natural Sciences
Department of Geology and Geophysics

Degrees: M.S., Ph.D.

Minimum Requirements for Degrees: M.S. — 36 credits (beyond a bachelor’s degree), Ph.D. (open)
For complete information on the graduate programs in geophysics, see the UAF Graduate Catalog.

Guidance and Counseling

College of Rural Alaska
Department of Behavioral Sciences and Human Services

Degree: M.Ed.
Minimum Requirements for Degree: M.Ed. 42 additional credits

For complete information on the graduate program in Guidance and Counseling, see the UAF Graduate Catalog.

History

College of Liberal Arts
Department of History

Degrees: B.A., M.A.T.
Minimum Requirements for Degrees: B.A. — 130 credits; M.A.T. — 36 additional credits

The history department seeks to make the student aware of the human cultural heritage, the great problems that have faced humans throughout history and how we have sought to solve them.

The department also trains the student in applying the historical method which offers analysis based on the dimension of time, discussion, focused on concrete, specific events, persons and judgments explains why things are as they are. Students will learn effective historical research and writing.

Through the study of history, students may prepare for careers in public service agencies; as members of management teams, particularly in the area of policy analysis, for careers in teaching, or for advanced work in history and other social sciences.

Requirements

History — B.A. Degree
1. Complete general university and B.A. degree requirements. (Complete HIST 100X as part of the core.)
2. Complete the following program (major) requirements:
   Complete any three of the following: Credits
   HIST 101 — Western Civilization ........................................ 3
   HIST 102 — Western Civilization ........................................ 3
   HIST 121 — East Asian Civilization .................................... 3
   HIST 122 — East Asian Civilization .................................... 3
   HIST 131 — History of the U.S. ........................................ 3
   HIST 132 — History of the U.S. ........................................ 3
   Upper-division electives in history .................................. 15
   Complete the following: Credits
   HIST 475 — Historiography .............................................. 3
   HIST 476 — Historical Method .......................................... 3
   3. Minimum credits required ........................................... 130
MINOR in History:
A minor in history requires the completion of 18 credits in history, six of which must be at the 300 level or above.

History — M.A.T. Degree
For complete information on the graduate program in history, see the UAF Graduate Catalog.

Humanities

College of Liberal Arts
Department of Philosophy and Humanities

Degree: B.A.
Minimum Requirements for Degree: 130 credits

One main objective of the humanities program is to enable the student to go beyond specialization and achieve integration of knowledge. Others are to deepen an appreciation of all the arts, to develop critical thinking, and to heighten an awareness of self and role in society.

The humanities program is set up in such a way as to offer a solid second major for many bachelor of arts and bachelor of science degree candidates. It aims at students from virtually all fields of specialization.

Requirements

Humanities — B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete two years at the college level in a non-English language.
3. Complete the following program (major) requirements:
   Prerequisites: Credits
   HIST 101-102 — Western Civilization ................................ 6
   HIST 102 — Western Civilization ........................................ 3
   PHIL 201 — Introduction to Philosophy ................................ 3

Complete the following core courses:
   HUM 201 — Unity in the Arts ........................................... 3
   HUM 202 — Unity in the Sciences ....................................... 3
   HUM 230 — The Modern Media ........................................... 3
   HUM 320 — History of the World ....................................... 3
   HUM 332 — Varieties of Visual Expression ........................... 3
   HUM 342 — Synthesis in Musical Expression ........................ 3
   HUM 101-102 — Dimensions of Literature ........................... 3
   HUM 481 — Philosophy of Science ..................................... 3
   HUM 492 — Senior Seminar ............................................. 3

Electives: 21 credits
Courses chosen from the three major areas: arts, natural sciences, social sciences; three courses to be taken in one of these areas, and two in each of the remaining ones, totaling 21 credits. A list of recommended courses, drawn up and periodically updated by the Humanities Standing Committee after consultation with all departments in all colleges that wish to cooperate, will assist the student in making the choice of electives.
4. Minimum credits required ............................................. 130

MINOR in Humanities:
Prerequisites: Credits
HIST 101-102 — Western Civilization ................................ 6
Core Courses
   HUM 201 — Unity in the Arts ........................................... 3
   HUM 202 — Unity in the Sciences ....................................... 3
Upper-division Humanities electives ................................ 12

Human Services

College of Rural Alaska
Department of Behavioral Sciences and Human Services

Degree: B.A. *
Minimum Requirements for Degree: B.A. — 121 credits

The B.A. in human services was developed in response to a need for a program at the bachelor's level which prepares students to function as counselors and social service workers in rural areas. Agencies seeking middle-level, baccalaureate professionals will provide career placements. Students in this program gain knowledge about various agencies in the state that address social service needs and are trained in generic skills such as agency administration, counseling, and the usual content areas which are customarily addressed by such agencies (e.g., alcoholism and drug abuse, child and youth care, and health problems). Students will become familiar with cross-cultural issues in human service needs and are taught to integrate that knowledge with human service planning, delivery and evaluation of services.

The human services program at the University of Alaska Fairbanks is interdisciplinary in its approach, cross-cultural in its content and rural in its orientation. The program is offered at the Fairbanks, Chukchi and Northwest campuses.

* At the present time, no students are being accepted into the Human Services program.

Requirements

Human Services — B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following integrated major-minor requirements: Behavioral sciences core (24 credits)
   HUM 201 — Introduction to Human Services ....................... 3
Human Service Technology

School of Career and Continuing Education

Academic Programs

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

The Human Service Technology program provides training and knowledge in basic helping skills needed for entry level employment in public, private and voluntary human service agencies. The Human Service Technicians employed in a wide variety of human service settings such as mental health, mental retardation and developmental disabilities, public assistance, corrections, substance abuse treatment. Persons seeking a career in human service should recognize that in order to be successful they must be emotionally stable, creative and flexible. Human Service Technicians will have to be able to work with diverse groups of people and individuals with a wide variety of ages, social and cultural backgrounds and life situations.

Requirements

Human Service Technology — A.A.S. Degree
1. Complete the following general university and A.A.S. requirements:

   Communications:
   - ENGL 111X and ENGL 211X, 212*, or 213X 6
   - SPCH 141X or 141X 3
   - MATH 110X or MATH 111X 3
   - A math or natural science course at the 100 level or above 3
   - PSY 101 — Introduction to Psychology 3

2. Complete the following major degree requirements:

   HST 101 — Introduction to Human Service 3
   - HST 304 — Personal Awareness and Growth 3
   - HST 110 — Social Problems and Community Resources 3
   - HST 115 — Human Growth and Development 3
   - HST 120 — Cultural Diversity and Human Service 3

   Departmental core (15 credits)
   (These courses may also be applied to fulfill general distribution requirements.)
   - HST 101 — Introduction to Sociology 3
   - PSY 240 — Developmental Psychology in Cross-Cultural Perspective 3
   - PSY 304 — Personality 3
   - PSY 380 — Human Behavior in the Arctic 3
   - ANTH 242 — Native Cultures of Alaska 3

Human Services:
- HMSC 210 — Crisis Intervention 3
- HMSC 255 — Foundations of Counseling I 3
- HMSC 356 — Foundations of Counseling II 3
- HMSC 230 — Alcoholism: Theories of Etiology 3
- HMSC 330 — Alcoholism: Treatment and Prevention 3
- HMSC 360 — The Helping Role in Child Abuse and Neglect 3
- HMSC 410 — Management of Human Service Programs 3
- HMSC 415 — Group Counseling 3
- HMSC 440 — Practicum in Human Services 3
- HMSC 445 — Internship 3
- *HMSC 460 — Community Psychology 3
- *PSY/SOC 220 — Drugs and Drug Dependence 3
- SOC 310 — Sociology of Later Life 3
- SOC 105 — History of Social Work 3
- RD 325 — Community Organization and Development Strategies 3

Minimum Credits Required for Degree: 121

These courses, when not applied toward the major, may be applied to fulfill distribution requirements.

MINOR in Human Services:
A minor in human services requires the satisfactory completion of 15 credits of approved human services courses including HMSC 201 and 210.

Graduate

Interdisciplinary Studies

Degrees: A.A.S., B.A., B.S., B.T., M.A., M.S., Ph.D.
Minimum Requirements for Degree: A.A.S. credits: B.A., B.S. or B.T. — 130 credits; M.A. and M.S. — 30 or more credits; Ph.D. — open

Undergraduate

The exceptional student with well-defined goals which do not fit into the established undergraduate program of the university has an opportunity to achieve recognition for carrying out an approved interdisciplinary program which satisfies the requirements for an associate or baccalaureate degree. For this purpose the associate of applied science, bachelor of arts, bachelor of science and bachelor of technology degrees in interdisciplinary studies are offered.

Students may develop an interdisciplinary curriculum proposal leading to an A.A.S., B.A., B.S. or B.T. degree in interdisciplinary studies upon completion of 15 credits at UAF, and preferably 30 credits (for the associate's degree), or 60 credits (for the bachelor's degree) prior to graduation. The proposed curriculum must differ significantly from established degree programs at UAF and will require evidence that the necessary facilities and faculty are available to ensure an appropriate and comprehensive undergraduate degree. All general requirements for the A.A.S., B.A., B.S. or B.T. degree must be met.

Students who are interested in pursuing an undergraduate degree in interdisciplinary studies, or who want to explore this as an option, may contact the Academic Advising Center for assistance in finding faculty advisors and developing a curriculum proposal.

Applicants must submit to the Vice Chancellor for Academic Affairs their proposal for the program they wish to pursue, specifying the degree (A.A.S., B.A., B.S., B.T.), proposed curriculum and rationale. A committee of at least three faculty members who are familiar with the interdisciplinary subject will be appointed to review the proposal and make a recommendation to the Vice Chancellor. If the curriculum is approved, this committee will advise the student throughout the program. The degree title will be chosen by the committee in concert with the graduate program and with the approval of the Vice Chancellor. Changes within the approved curriculum would be made only with the approval of this advisory committee.

Journalism and Broadcasting

College of Liberal Arts
Department of Journalism and Broadcasting

Degree: B.A.
Minimum Requirements for Degree: 130 credits

The curriculum in Journalism and Broadcasting offers a balance of professional and theory courses for majors and non-majors. Majors are able to take a variety of skills and theory courses while acquiring a strong liberal arts background. Non-majors, including those minorin in Journalism and Broadcasting, may choose from a wide selection of courses to meet their needs.

Besides gaining a solid academic background in the classroom, students get practical experience by working with media on and off campus. On campus, these include public television and public radio stations and a student-owned FM-station. Print journalists work...
on the campus newspaper. Off campus, students may choose from a variety of radio and television stations. Print journalists work at the Fairbanks Daily News-Miner.

Students in the department also have access to the department's state-of-the-art laboratory facilities. These include a computerized newswriting lab, typography lab, audio production lab, video editing lab and two photography labs.

The department and its two sequences, News-Editorial and Broadcast, are fully accredited by the Accrediting Council on Education in Journalism and Mass Communications.

Requirements

Journalism — B.A. Degree

1. Complete the general university requirements and B.A. degree requirements.

2. Complete the following program (major) requirements:

A. Complete the following courses in journalism:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB 101 — Introduction to Mass Communications</td>
<td>3</td>
</tr>
<tr>
<td>or JB 102 — Broadcasting and Society</td>
<td>3</td>
</tr>
<tr>
<td>JB 301 — Basic Newsgathering and Processing</td>
<td>3</td>
</tr>
<tr>
<td>JB 320 — Journalism in Perspective</td>
<td>3</td>
</tr>
<tr>
<td>JB 400 — Media Practicum</td>
<td>3</td>
</tr>
<tr>
<td>JB 413 — Mass Media Law and Regulations</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Complete one of the following sequences:

News-Editorial

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB 444 — Advanced Newsgathering and Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

One of the following:

B 203 — Basic Photography

B 215 — Audio Production

B 316 — Television Production

Four of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB 204 — Basic Photojournalism</td>
<td>3</td>
</tr>
<tr>
<td>B 240 — International Communications</td>
<td>3</td>
</tr>
<tr>
<td>B 303 — Intermediate Photography</td>
<td>3</td>
</tr>
<tr>
<td>B 311 — Magazine Article Writing</td>
<td>3</td>
</tr>
<tr>
<td>B 323 — Publication Editing</td>
<td>3</td>
</tr>
<tr>
<td>B 324 — Typography and Publication Design</td>
<td>3</td>
</tr>
<tr>
<td>B 340 — Approaches to the Study of Mass Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

*JB 326 — Principles of Advertising | 3 |

*JB 402 — Advanced Photography | 3 |

B 411 — Advanced Writing for Publications

B 424 — Magazine Production

B 433 — Public Relations

B 492 — Seminar | 2 or 3

**Broadcast

18 Credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB 215 — Audio Production</td>
<td>3</td>
</tr>
<tr>
<td>B 316 — Television Production</td>
<td>3</td>
</tr>
</tbody>
</table>

Four of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB 204 — Basic Photojournalism</td>
<td>3</td>
</tr>
<tr>
<td>B 240 — International Communications</td>
<td>3</td>
</tr>
<tr>
<td>B 317 — Broadcast Journalism</td>
<td>3</td>
</tr>
</tbody>
</table>

*JB 326 — Principles of Advertising | 3 |

B 340 — Approaches to the Study of Mass Communication

B 372 — Instructional Television

B 407 — Programming and Production

B 415 — News/Documentary Television Production

B 416 — Advanced Broadcast Production

B 433 — Public Relations

B 492 — Seminar | 2 or 3

C. Although not required, it is strongly recommended that every journalism student study another language, both to help gain a better perspective of English and to better comprehend the changing world.

D. To assure the journalist of a broad liberal arts education, 90 credits must be outside of Journalism-Broadcasting, 65 of which should be from courses which meet general distribution requirements, i.e., those with course classifications of "h", "w", "n", "w", and "v".

3. Minimum credits required: 130

*Cross-listed with BA 326, Principles of Advertising.

**Note: It should be understood that this broadcast option is primarily a news and production curriculum and is not intended as a dramatic or performing arts option.

MINOR in Journalism and Broadcasting:

Complete at least 16 credits of approved journalism and/or broadcasting courses, including the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB 101 — Introduction to Mass Communications</td>
<td>3</td>
</tr>
<tr>
<td>or JB 102 — Broadcasting and Society</td>
<td>3</td>
</tr>
<tr>
<td>JB 301 — Basic Newsgathering and Processing</td>
<td>4</td>
</tr>
</tbody>
</table>

Justice

College of Liberal Arts

Department of Political Science

Degree: B.A.

Minimum Requirements for Degree: B.A. — 130 credits

It has been said that the quality of a nation's civilization can be largely measured by the methods it uses to enforce its criminal law.

In the United States we deal with our criminals through a complex maze of organizations commonly referred to as the criminal justice system. This system is composed of police, courts, corrections and a multitude of supportive professions which are more or less actively engaged in dealing with criminals within the guidelines of our federal and state constiuions.

Only through an active educational effort by criminal justice personnel and students planning to enter the profession can we hope to attain the high degree of professionalism necessary to create and maintain a criminal justice system which will mirror our otherwise advanced civilization.

Requirements

Justice — B.A. Degree

1. Complete the general university requirements and general requirements for the B.A. degree.

Electives chosen to fulfill the general requirements for the B.A. degree must be approved in advance by the director of the justice program.

2. Complete the following program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST 110 — Introduction to Justice</td>
<td>3</td>
</tr>
<tr>
<td>JUST 222 — Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>JUST 250 — Development of Law</td>
<td>3</td>
</tr>
<tr>
<td>JUST 251 — Criminality</td>
<td>3</td>
</tr>
<tr>
<td>JUST 258 — Juveniles and the Law</td>
<td>3</td>
</tr>
<tr>
<td>JUST 330 — Justice and Society</td>
<td>3</td>
</tr>
<tr>
<td>JUST 460 — Justice Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

Justice Electives: 15 credits in justice courses of which 12 credits must be upper division.

3. Minimum credits required: 130

MINOR in Justice:

Complete 15 credits in justice, including JUST 110.

Law

School of Career and Continuing Education

Service Industry Department

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

This degree program is presently suspended.

Law

Pre-Professional Program

(907) 474-6396

Law education prepares students to become attorneys. Attorneys are concerned with the interpretation of law and its application to specific situations. This involves doing in-depth research, writing reports and briefs, advising clients and representing parties in reports and briefs, advising clients and representing parties in courts. Often law school graduates go on to hold government office, or to serve as judges, public servants, teachers or administrators.

Law school consists of three years of graduate level study. Instruction includes classroom lecture and discussion, considerable outside research, and practice of courtroom procedures. Upon graduation, students must pass a state bar exam in order to practice.

Completion of a bachelor's degree is required for admission into most law schools. While law schools do not prescribe a specific major for admission, students should have a strong academic record and high scores on the Law School Admission Test (LSAT).
A liberal education is the best preparation for law school. Students planning a legal career should select courses which are designed to enhance communication skills, both oral and written, to expand understanding of human values and institutions, and to develop analytical reasoning and logical thinking. Areas of study which are valuable for pre-law majors are English, philosophy, history, literature and the social sciences. Additionally, courses in accounting and economics are recommended. Recent trends indicate that students with an undergraduate degree in the natural sciences are gaining in favor for law school admission.

Students interested in a legal career are assigned a special pre-law advisor, through the Academic Advising Center, to discuss program planning, professional schools and financial planning.

**Library Science**

**Pre-Professional Program**

(907) 474-6396

The field of library and information science engages students in professional positions concerned with the management of information in libraries and other environments. One graduate program states that the contemporary librarian has become an essential part of the complex communication/information network that now encircles the globe. Today’s information professional must understand how information is created and disseminated in society; must be familiar with print, non-print and electronic media; and must be adept in the use of computers, automated techniques, and information networks.

For a professional career in library science, a one-to-two year program of graduate study is generally required. Course work in the graduate program may include attention to planning and evaluation related to acquiring, organizing and accessing information in library settings, management tools, and design and provision of information services. Special emphasis on topics such as law or medicine may also be available with some programs.

The caliber of one’s undergraduate work, as well as test results on the Graduate Record Exam (GRE), are of particular importance when applying for admission to a program of professional library studies. While librarians have traditionally come from a humanities background, a broader scope of preparation is expected by schools of library science.

At UAF, pre-library science students pursue a broad, general background, rather than a prescribed curriculum. Students are advised to include courses in computer applications and programming, statistics and foreign languages so as to satisfy the demands of the library science field and the admission requirements of some graduate programs. Concentrations in the social and physical sciences are valuable as the number of special libraries increases.

Advisement for students interested in a career in library science is available through the Academic Advising Center. Also, students may consult the career guidance file maintained in the Rasmuson Library.

**Linguistics**

**College of Liberal Arts**

**Department of Linguistics**

(907) 474-6885

Degree: B.A.

Minimum Requirements for Degree: B.A. — 130 credits

Linguistics is the scientific 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 Linguistics Program offers undergraduate courses and aims to give an overview of the discipline to make students aware of the many aspects of that uniquely human phenomenon, language.

Requirements

Linguistics — B.A. Degree

1. Complete the general university requirements.

2. Complete the B.A. degree requirements:

3. Complete the following program (major) requirements:

   A. Background-related Requirements (15-18 credits)
   - Four semesters (or equivalent) of one foreign or Native language and two semesters of a second.
   - (It is recommended that at least one of the languages be other than an Indo-European language.)

   B. Major requirements (30 credits)

   - Complete the following Linguistics courses:

     LING 101 — Nature of Language
     LING 318 — Intro. to Phonetics and Phonology
     LING 320 — Intro. to Syntactic Theory
     LING 350 — Historical Linguistics

   - Complete 7 of the following courses:

     LING 216 — Languages of the World
     LING/ED 303 — Language and Literacy Development
     LING 340 — Aspects of Bilingualism
     LING 410 — Second Language Teaching
     LING 450 — Language Policy and Planning
     LING 462 — Applied English Linguistics
     LING 482 — Topics in Linguistics

   (may be taken twice)

   ANL 215 — Alaska Native Languages
   ANL 216 — Native Languages
   ANS 320 — Language and Cultures
   ENGL 318 — Modern English Grammar
   ENGL 462 — Applied English Linguistics
   ENGL 472 — History of the English Language
   LING 482 — Topics in Linguistics

   Where appropriate, courses listed under A may be counted toward fulfillment of B.A. requirements listed under B.

4. Minimum credits required: 130

**MINOR in Linguistics:**

A minor in linguistics requires 15 credits in linguistics. Three of these credits may be from related courses in other departments as listed under B. above.

**Marine Biology**

**School of Fisheries and Ocean Sciences**

**Graduate Program in Marine Sciences and Limnology**

(907) 474-7331

Degrees: M.S. — 30 credits (beyond a bachelor’s degree)

Minimum Requirements for Degree: 30 credits

The graduate curriculum in marine biology, offered by the Department of Marine Sciences and Limnology, focuses on the organisms, while biological oceanography focuses on how biological processes influence and are influenced by the ocean environment.

Graduate students are afforded excellent opportunities for laboratory and field research through the Institute of Marine Science. Laboratory facilities are available at Fairbanks, the Seward Marine Center, the Juneau Center for Fisheries and Ocean Science, the Fishery Industrial Technology Center at Kodiak, and at a number of coastal field sites. Opportunities for field work are available on the R/V Alpha Helix, which operates along the Alaskan Coast and in the Bering Sea, on the R/V Little Dipper, which operates in Resurrection Bay, and on the R/V Maybeso, which operates in Southeast Alaska.

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. Requests for admission are considered continuously and each application is reviewed by the department faculty. 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.

For complete information on the graduate program in marine biology, see the UAF Graduate Catalog.

**Mathematics**

**College of Liberal Arts**

**Department of Mathematics**

(907) 474-7332

Degrees: B.A., B.S., M.A.T., M.S., Ph.D.

Minimum Requirements for Degrees: B.A. — 120 credits; B.S. — 120 credits; M.A.T. — 36 additional credits; M.S. — 30-35 additional credits

The number of new fields in which professional mathematicians find employment grows continually. A variety of programs are offered by the Department of Mathematical Sciences for students majoring in mathematics. Options exist for those who are planning careers in industry, government, or education. The Department of Mathematical
Sciences also offers degree programs in statistics and computer science which are described elsewhere in this catalog.

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.

Requirements

In addition to meeting all the general requirements for the specific degree, certain mathematics courses are required of all mathematics majors. (At least 12 approved mathematics credits at the 300 level or above must be taken while in residence on the Fairbanks campus.) All electives must be approved by the department. (All mathematics majors — including double majors — must have an adviser from the Department of Mathematical Sciences.) Students preparing to teach mathematics in secondary schools should contact the Department of Education for a list of mathematics and education courses necessary to obtain an Alaskan teaching certificate.

Mathematics — B.A. or B.S. Degree
1. Complete the general university requirements and requirements for a B.A. or B.S. degree.
2. Complete the following program (major) requirements:
   - Complete the following courses:
     - MATH 200, 201, 202 — Calculus sequence ........................................ 12
     - MATH 215 — Intro. to Mathematical Proofs ........................................ 2
     - MATH 314 — Linear Algebra ................................................................. 3
     - MATH 308 — Abstract Algebra ............................................................ 3
     - MATH 401 — Advanced Calculus ......................................................... 3
     - MATH 492 — Senior Seminar ............................................................... 2
   - TOTAL 26

   Complete an elective package in the Mathematical Sciences consisting of at least 12 credits. This package must be approved by a Mathematical Sciences adviser and must include at least 12 credits at the 300-level or above. Students who are obtaining a single B.S. or B.A. with mathematics as a second major may substitute up to 9 credits of approved courses with strong mathematical content for Mathematical Sciences electives.

3. Minimum credits required ................................................................. 120

The following sample elective packages are suggested for students with interests in the indicated areas of emphasis.

A. Pure Math
   - MATH 305 — Geometry ........................................................................ 3
   - MATH 307 — Discrete Mathematical Structures .................................... 3
   - MATH 402 — Advanced Calculus .......................................................... 3
   - MATH 404 — Topology ........................................................................ 3
   - Approved Math elective ........................................................................ 3
   - TOTAL 18

B. Applied Math
   - MATH 302 — Differential Equations ..................................................... 3
   - MATH 421 — Applied Analysis I ............................................................ 4
   - MATH 422 — Applied Analysis II ........................................................... 4
   - MATH 460 — Mathematical Modeling .................................................... 3
   - Two courses chosen from MATH 307, 402, 310 and STAT 300 .......... 6
   - TOTAL 20

C. Secondary Education
   - STAT 300 — Statistics ....................................................................... 3
   - MATH 305 — Geometry ........................................................................ 3
   - CS 201 — Computer Programming I ..................................................... 3
   - MATH 306 — History of Mathematics ................................................... 3
   - Approved Math elective ........................................................................ 3
   - TOTAL 18

D. Statistics Emphasis
   - MATH 371 — Probability .................................................................... 3
   - MATH 408 — Mathematical Statistics .................................................... 3
   - MATH 460 — Mathematical Modeling .................................................... 3
   - STAT 300 — Statistics .......................................................................... 3
   - STAT 401 — Experimental Design & Regression .................................... 3
   - Approved elective .................................................................................. 3
   - TOTAL 18

MINOR in Mathematics:
A minor in Mathematics requires completion of Math 200-201-202. In addition to nine departmentally approved credits.

Mathematics — M.S., M.A.T. or Ph.D. Degree

For complete information on the graduate programs in mathematics, see the UAF Graduate Catalog.

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### Mechanical Engineering

**School of Engineering**

**Department of Mechanical Engineering**

Degrees: B.S., M.S.

Minimum Requirements for Degrees: B.S. — 130 credits; M.S. — 30 additional credits

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 basis for entering law, medical, or business school, as well as for graduate work in engineering.

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 sciences — extensions to the basic sciences forming the foundation to engineering synthesis and design. Senior year courses focus on mechanical engineering 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 in mechanical engineering may elect to complete an emphasis in petroleum engineering consisting of 12 credit hours. Six of these credit hours can be used to fulfill the elective credit requirement in the mechanical engineering curriculum.

Because of the unique location of the University of Alaska Fairbanks, special emphasis is placed on cold regions engineering problems. This fact is highlighted in the mechanical engineering program by the technical elective, arctic engineering.

Candidates for the bachelor of science degree in mechanical engineering will be required to take the State of Alaska Engineer-in-Training Examination in their general field.

**Requirements**

Mechanical Engineering — B.S. Degree

1. Complete the general university requirements.
2. Complete the following degree and program (major) requirements. Students must plan their elective courses in consultation with their mechanical engineering faculty advisor, and all elective courses must be approved by their mechanical engineering faculty advisor. At least 6 of the 16 social science and humanities elective credit must be: (a) above the 100 level; or (b) advanced courses in a 100 level sequence. Sufficient depth in at least one of the areas must be demonstrated by evidence of a sequence of courses. This sequence must be approved by the student's departmental advisor.

#### First Year

**Fall Semester**

- ENGL 111X — Methods of Written Communication ................................................. 3
- MATH 200 — Calculus .................................................................................... 3
- ES 101 — Descriptive Geometry for Engineers ..................................................... 3
- CHEM 105 — General Chemistry ........................................................................ 4
- Perspectives on the Human Condition ............................................................ 3

**Spring Semester**

- MATH 201 — Calculus .................................................................................... 3
- ES 101 — Descriptive Geometry for Engineers ..................................................... 3
- CHEM 106 — General Chemistry ........................................................................ 3
- Perspectives on the Human Condition ............................................................ 3

**Second Year**

**Fall Semester**

- PHYS 211X — General Physics .......................................................................... 4
- MATH 202 — Calculus .................................................................................... 3
- STAT 300 — Statistics .................................................................................... 3
- ME 321 — Industrial Processes ........................................................................ 3
- ENGL 213X — Intermediate Exposition ............................................................ 3

**Spring Semester**

- PHYS 212X — General Physics .......................................................................... 4
- MATH 302 — Differential Equations .................................................................. 3
- ES 210 — Dynamics ....................................................................................... 3
- ES 346 — Thermodynamics ............................................................................. 3
- Perspectives on the Human Condition ............................................................ 3
Third Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 301 — Engineering Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ES 309 — Elements of Electro Engr.</td>
<td>3</td>
</tr>
<tr>
<td>ES 315 — Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ES 341 — Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>Perspectives on the Human Condition</td>
<td>3</td>
</tr>
<tr>
<td>Spring Semester</td>
<td>16 credits</td>
</tr>
<tr>
<td>ME 302 — Mechanical Design I</td>
<td>4</td>
</tr>
<tr>
<td>ME 313 — Mech. Engr. Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 441 — Heat and Mass Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ES 308 — Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>Perspectives on the Human Condition</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 408 — Dynamics of Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME 413 — Thermal Systems Lab</td>
<td>3</td>
</tr>
<tr>
<td>ME Elective**</td>
<td>2</td>
</tr>
<tr>
<td>ME 334 — Elements Material Science Engr.</td>
<td>3</td>
</tr>
<tr>
<td>Technical Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Perspectives on the Human Condition</td>
<td>3</td>
</tr>
<tr>
<td>Spring Semester</td>
<td>17 credits</td>
</tr>
<tr>
<td>ME 403 — Mechanical Design II</td>
<td>4</td>
</tr>
<tr>
<td>ME 487 — Design Project</td>
<td>3</td>
</tr>
<tr>
<td>ME Elective**</td>
<td>2</td>
</tr>
<tr>
<td>ESM 450 — Econ. Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

*Engineering course at 400 level or above
**Mechanical Engineering course at 400 level or above
Selection of the elective courses must be made in consultation with ME advisor.

Mechanical Engineering — M.S. Degree

For complete information on the graduate program in Mechanical Engineering, see the UAF Graduate Catalog.

**Medical Technology**

*University of Alaska Fairbanks/University of Washington Cooperative Program*

For students interested in pursuing a Bachelor of Science degree in Medical Technology, UAF offers a program in cooperation with the University of Washington. Students enrolled in this program complete the first four semesters of their program at UAF, then apply for acceptance into the professional phase of the medical technology program at the University of Washington for an additional seven semesters. Up to four bona fide Alaska resident students will be accepted into the professional phase each year, if they qualify for admittance to the program. A Bachelor of Science degree is granted from University of Washington at the completion of the program.

While at UAF, students are required to complete 60 semester credits with a GPA of 3.0, to include the following courses: biology (BIOL 105, 106), chemistry (CHEM 105, 106), and math (MATH 271, 272).

For further information on the baccalaureate medical technology program, please contact the Academic Advising Center at the University of Alaska Fairbanks at (907) 474-6396.

**Requirements**

60 semester credits with a GPA of 3.0, including the following courses:

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 105X-106X — Fundamentals of Biology I and II</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 111-112 — Human Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 210 — Animal Physiology and BIOL 317 — Comp. Anatomy of Vertebrates</td>
<td>9 or 9</td>
</tr>
<tr>
<td>BIOL 442 — Bacteriology and Immunology</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 105X-106X — General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 212 — Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 321-322-324 — Organic Chemistry and Lab</td>
<td>9</td>
</tr>
<tr>
<td>MATH 271-272 or STAT 200 — Calculus Statistics</td>
<td>7 or 8</td>
</tr>
<tr>
<td>ENGL 111X-211X or 213X — Written Communication</td>
<td>6</td>
</tr>
<tr>
<td>SPCC 121 — Fundamentals of Oral Comm: Interpersonal</td>
<td>3</td>
</tr>
</tbody>
</table>

Social Studies elective — 3 credits, Humanities elective — 3 credits, other electives — 8-9 credits

For information on application procedures to the University of Washington and the Medical Technology Program contact the Health Professions Adviser, University of Alaska Fairbanks, Fairbanks, Alaska 99775.

**Medicine**

*Pre-Professional Program*

(907) 474-6396

Physicians serve a broad range of functions within the field of medicine; diagnosing disease, prescribing treatment, supervising patient care and participating in the improved delivery of health. As an alternative to direct patient care, physicians often branch off into other arenas of medicine, such as basic and applied research, teaching or administration.

Professional medical education consists of four years of graduate level study. Typically, the first two years of medical school are comprised of classroom instruction and laboratory work; the second two years consist of clinical rotations. Following graduation from medical school, students may elect to continue their training by doing a one year internship and/or a one-to-three year residency. The residency option is required in order to specialize in medicine.

Upon application to medical school, a student's overall academic achievement will be evaluated together with results of the Medical College Admission Test (MCAT). While medical schools do not require that students pursue a specific major at the undergraduate level, applicants are generally expected to have a foundation in biology, chemistry, and physics. AT UAF the courses which satisfy this are: chemistry (CHEM 105X and 106X), organic chemistry (CHEM 321 and 322), anatomy and physiology (BIOL 111 and 112), biology (BIOL 105X and 106X), and physics (PHYS 103X and 104X). In addition, medical schools recommend, but do not require, social sciences and humanities. While medical schools will consider applicants who have completed three years of undergraduate work, most entering medical students have completed a bachelor's degree.

Students who are considering medicine as a career choice should contact the Academic Advising Center to be assigned an academic advisor. Program advisement, exploration of professional schools and licensing requirements are available to meet the needs of students in fulfilling their career aspirations.

**Military Science**

*College of Liberal Arts*  
*Department of Military Science*

(907) 474-7501

Minor only

The Army Reserve Officers' Training Program 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. The program of instruction is designed to complement the student's goal of obtaining a bachelor's degree in a course of study of his/her own choosing. Through academic instruction and practical experience laboratories, the student becomes familiar with the leadership, management and decision-making 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. Military science courses are open to all students regardless of whether or not they intend to seek an Army commission.

**Basic Course** — All UAF students are eligible to enroll. There is no military obligation incurred by enrolling in any of the basic courses.

**Advanced Course** — Students enrolled in the basic course and desire to pursue the program for a commission, may apply for enrollment in the advanced course. 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. Those students selected who desire to compete for a commission are provided a $100-per-month subsistence allowance. They also incur a military obligation. Students who wish to enroll in advanced course classes, but do not desire to earn a commission, may do so with the approval of the department head. The obligation and subsistence allowance will be waived for those students.

Academic Credit — A maximum of 23 credits in military science courses may be used as elective credit toward fulfillment of baccalaureate degree requirements.

MINOR in Military Science — Military science is an approved minor for the bachelor of arts degree. The requirements for the minor are the satisfactory completion of 19 credits in military science as approved by the department.

Financial Aid — Advanced course students receive a monthly subsistence allowance during the school year which presently amounts to approximately $2,000 for the two-year period. This allowance is tax free.

Uniforms and Equipment — Students enrolled in military science are furnished uniforms and texts by the department.

Awards — Awards are made annually at the UAF awards ceremony. Awards, such as the governor’s and chancellor’s medals, are presented for outstanding achievement in the ROTC program, academic achievement, and leadership.

ROTC Rifle Team — Competition is scheduled with civilian and military teams in the state. Postal matches with other schools are fired throughout the year. All necessary equipment is furnished by the Department of Military Science at no cost to the student.

Two-Year Program — A special Basic Camp program is available for transfer students and others who were unable to take the ROTC prior to their last two years in school. This program allows immediate acceleration into the advanced course. Students should consult the PMS prior to 1 June annually for information concerning the camp.

Scholarships — Army ROTC scholarships pay all tuition, lab fees, and provide a book allowance in addition to the $100 monthly stipend. Scholarships are awarded for two or three years on a competitive basis. Interested students should contact the military science department for further details.

Mineral Preparation Engineering

School of Mineral Engineering
Department of Mining and Geological Engineering

Degree: M.S.
Minimum Requirements for Degree: 30-36 credits beyond bachelor's degree.

For complete information on the graduate program in mineral preparation engineering, see the UAF Graduate Catalog.

Mining Engineering

School of Mineral Engineering
Department of Mining and Geological Engineering

Degrees: B.S., M.S., E.M.
Minimum Requirements for Degrees: B.S. — 134 credits; M.S. — 30-36 additional credits; E.M. — thesis and 5 years of experience

In the mining engineering curriculum, particular emphasis is placed upon engineering as it applies to the exploration and development of mineral resources and upon the economics of the business of mining. The program allows the student the choice of technical electives to develop in areas of exploration, mining or mineral beneficiation.

Candidates for the bachelor of science degree in mining engineering will be required to take a comprehensive examination in their field of specialization (completion of the State of Alaska Engineer-in-Training examination will satisfy this requirement). The program of Alaska Engineering-in-Training is a first step toward registration as professional engineers.

Students may initiate their mining engineering program in Anchorage and transfer to Fairbanks upon completion of their freshman or sophomore year. Such students should be in communication with faculty of the Mining Engineering Department, UAF.

Requirements

Mining Engineering — B.S. Degree
1. Complete the general university requirements.
2. Complete the following degree and program (major) requirements:

First Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111X — Methods of Written Communication</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 105X — General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MIN 103 — Introduction to Mining Engineering</td>
<td>2</td>
</tr>
<tr>
<td>MIN 104 — Mining Safety and Operations Lab</td>
<td>1</td>
</tr>
<tr>
<td>Perspectives on the Human Condition</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 201 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211 — General Physics</td>
<td>4</td>
</tr>
<tr>
<td>MIN 202 — Mine Surveying</td>
<td>3</td>
</tr>
<tr>
<td>MIN 313 — Introduction to Mineral Preparation</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 212 — General Physics</td>
<td>4</td>
</tr>
<tr>
<td>ES 208 — Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>MIN 343 — Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>GE 261 — General Geology for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 331 — Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ES 341 — Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>SIT 380 — Statistics</td>
<td>5</td>
</tr>
<tr>
<td>ES 307 — Elements of Electrical Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

| Perspectives on the Human Condition | 3 |

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 346 — Basic Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>MIN 370 — Rock Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MIN 301 — Mine Plant Design</td>
<td>3</td>
</tr>
<tr>
<td>MIN 402 — Underground Mining Meth. &amp; Their Design</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 332 — Ore Deposits and Structure</td>
<td>3</td>
</tr>
</tbody>
</table>

| Perspectives on the Human Condition | 3 |

Fourth Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 443 — Rock Fragmentation</td>
<td>3</td>
</tr>
<tr>
<td>MIN 445 — Design of Surface Mines for Conv. &amp; Arctic Cond</td>
<td>3</td>
</tr>
<tr>
<td>MIN 446 — Underground Mining Meth. &amp; Their Design</td>
<td>3</td>
</tr>
<tr>
<td>MIN 447 — Mining Methods for Placer and Offshore Deposits</td>
<td>3</td>
</tr>
</tbody>
</table>

| Perspectives on the Human Condition | 3 |

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 408 — Mineral Valuation and Economics</td>
<td>3</td>
</tr>
<tr>
<td>MIN 409 — Operations Research &amp; Computer Appl. in Min. Ind.</td>
<td>3</td>
</tr>
<tr>
<td>MIN 490 — Mine Design Project</td>
<td>2</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>6</td>
</tr>
<tr>
<td>Perspectives on the Human Condition</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes:
1. 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.
2. On alternate years, Perspectives on the Human Condition requirement should be taken.
3. On alternate years, GEOS 262 should be substituted.
4. On alternate years, GEOS 332 should be substituted.

Recommended Technical Electives for B.S. in Mining Engineering
1. MIN 472 — Design, Construction and Stability of Mining Openings
2. GE 405 — Exploration Geophysics
3. GE 440 — Slope Stability
4. MIN 410 — Surface Materials Handling Systems

At least three out of the six technical elective credits must be taken from the above list of the approved technical electives. The other three credits should be chosen in consultation with the advisor and subject to approval by the department head.
### Mining Engineering — M.S. Degree

For complete information on the graduate program in Mining Engineering, see the UAF Graduate Catalog.

### Museum Studies

**College of Natural Sciences**

(907) 474-7505

The Museum Studies courses provide students with an understanding of the functions and roles of museums in contemporary society, with an emphasis on their hands-on experience. Emphasizing a broad natural history focus, Museum Studies courses present a comprehensive perspective of education, research, and public service in museums and cover a variety of subjects.

### Music

**College of Liberal Arts**

**Department of Music**

(907) 474-7555

**Degrees: B.A., B.M., M.A., M.T.**

**Minimum Requirements for Degrees:**

- B.A. — 130 credits
- B.Mus. — 127 credits
- M.A. — 30 additional credits
- M.T. — 38 additional credits

The curriculum is designed to satisfy cultural and professional objectives.

- The bachelor of arts degree in music is a curriculum planned for those desiring a broad, liberal education with a concentration in music.
- The bachelor of music degree in music education offers thorough preparation in teacher training with sufficient time to develop excellence in performance areas.
- The bachelor of music in performance degree offers intensive specialization for those desiring professional training in music performance.

The various music organizations maintained by the department offer participation for students in all academic divisions of the university. Music majors will be required to participate in at least one ensemble (band, choir, orchestra, chorus) each semester they are enrolled. In addition, participation in chamber music opportunities is offered. Piano majors may receive ensemble credit by performing as accompanists.

Attendance at recitals and concerts provides students with a variety of musical experiences which expand their regular curriculum, therefore, attendance is mandatory for all majors. All applied music students are expected to perform in student recitals during each semester of study.

At the end of the sophomore year, all music majors must demonstrate a satisfactory level of proficiency of performance in their applied major and in other advanced upper-division courses in music. A student may elect to continue study at the 200 level in attempting to pass requirements for admission to upper-division study.

A piano proficiency jury examination must be successfully completed by the end of the student’s second year in the program. This examination will consist of (1) performance of a recital composition equivalent in difficulty to a Bach two-part invention, or Clementi or Kuhlau sonatina; (2) sight reading of Bach Chorale; (3) improvisation of a choral accompaniment to a simple melody; and (4) transposition and harmonization of the same song to another key.

Students who desire to enroll in music theory courses will complete a placement examination and be allowed to enter at their appropriate level.

Current and prospective music majors may obtain a copy of the music department’s handbook for further information about current degree requirements.

The music department of UAF is a full member of the National Association of Schools of Music, the national accrediting organization.

### Requirements

**Music — B.A. Degree**

1. Complete general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 131-132</td>
<td>4</td>
</tr>
<tr>
<td>MUS 133-134</td>
<td>4</td>
</tr>
<tr>
<td>MUS 221-222</td>
<td>6</td>
</tr>
</tbody>
</table>

**MUS 231-232 — Advanced Theory**

**MUS 233-234 — Advanced Ear Training**

**MUS 331 — Form and Analysis**

**MUS 190 — Recital Attendance**

**Six credits to be selected from:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 421</td>
<td>3</td>
</tr>
<tr>
<td>MUS 422</td>
<td>3</td>
</tr>
<tr>
<td>MUS 423</td>
<td>3</td>
</tr>
<tr>
<td>MUS 424</td>
<td>3</td>
</tr>
<tr>
<td>MUS 161-462</td>
<td>6</td>
</tr>
<tr>
<td>Ensembles (may include up to 2 credits)</td>
<td>1</td>
</tr>
<tr>
<td>MUS 307</td>
<td>3</td>
</tr>
<tr>
<td>MUS 253</td>
<td>3</td>
</tr>
</tbody>
</table>

**Minimum credits required**

**Music — B.M. Degree**

**Music Education — Secondary**

1. Complete the general university requirements.
2. Complete the following degree and program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111X or equivalent and 211X or 213X</td>
<td>6</td>
</tr>
<tr>
<td>Speech Communications</td>
<td>3</td>
</tr>
<tr>
<td>Humanities (non-music)</td>
<td>15</td>
</tr>
<tr>
<td>Mathematics (including Computer Science, Natural Science, Social Science; must include PSY 101)</td>
<td>15</td>
</tr>
</tbody>
</table>

**Required Music Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 161-462</td>
<td>6</td>
</tr>
<tr>
<td>MUS 131-132</td>
<td>6</td>
</tr>
<tr>
<td>MUS 221-222</td>
<td>6</td>
</tr>
<tr>
<td>MUS 231-232</td>
<td>6</td>
</tr>
<tr>
<td>MUS 233-234</td>
<td>6</td>
</tr>
<tr>
<td>MUS 251</td>
<td>6</td>
</tr>
</tbody>
</table>

**Secondary Area:**

Twenty-seven credits to be selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 124</td>
<td>3</td>
</tr>
<tr>
<td>MUS 153</td>
<td>3</td>
</tr>
<tr>
<td>MUS 231-232</td>
<td>6</td>
</tr>
<tr>
<td>MUS 233-234</td>
<td>6</td>
</tr>
<tr>
<td>MUS 253</td>
<td>6</td>
</tr>
</tbody>
</table>

**Minimum credits required for degree**

**B.M. Music: 127 credits**

1. Repeatable for credit — MUS 153, 307, 313, 317
3. Maximum total of 6 credits.
4. Minimum of 6 credits to be selected from MUS 421, 422, 423, 424.
5. Minimum of 6 credits to be selected from MUS 331, 431, 432, 433.

**The applied music credit minimums defined for the major area of performance may be distributed over more than one instrumental area provided that the required level of competency is achieved for one instrument.**

A half recital will be required in the junior year and a full recital in the senior year. The student, in his graduation recital, must demonstrate ability to perform satisfactorily in public programs of artistic merit. See music department’s handbook for details.
### Music - B.M. Degree (Music Education - Elementary)

1. Complete the general university requirements.
2. Complete the following degree and program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111X or equivalent and Eng1. 211X or 213X</td>
<td>6</td>
</tr>
<tr>
<td>Anthropology or equivalent</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics (including Computer Science, Natural Science, Social Science)</td>
<td>15</td>
</tr>
<tr>
<td>MUS 101 - Elementary School Music Methods (same as ED 309)</td>
<td>3</td>
</tr>
<tr>
<td>MUS 315 - Music Methods and Techniques</td>
<td>10</td>
</tr>
<tr>
<td>MUS 331 - Form and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MUS 351 - Conducting</td>
<td>6</td>
</tr>
<tr>
<td>MUS 432 - Orchestration</td>
<td>3</td>
</tr>
<tr>
<td>MUS 431 - Conducting</td>
<td>6</td>
</tr>
<tr>
<td>MUS 434 - Advanced Ear Training</td>
<td>3</td>
</tr>
<tr>
<td>MUS 436 - Structure of American/Alaskan Education</td>
<td>3</td>
</tr>
<tr>
<td>MUS 437 - Music Theory, History and Appreciation</td>
<td>3</td>
</tr>
<tr>
<td>MUS 438 - Composition in Cross-Cultural Classrooms</td>
<td>3</td>
</tr>
<tr>
<td>MUS 439 - Elementary School Music Methods (same as ED 309)</td>
<td>3</td>
</tr>
<tr>
<td>MUS 430 - Cultural Influences in Education</td>
<td>3</td>
</tr>
<tr>
<td>MUS 431 - Cultural Influences in Education</td>
<td>3</td>
</tr>
<tr>
<td>MUS 432 - Orchestration</td>
<td>3</td>
</tr>
<tr>
<td>MUS 433 - Conducting</td>
<td>6</td>
</tr>
<tr>
<td>MUS 434 - Advanced Ear Training</td>
<td>3</td>
</tr>
<tr>
<td>MUS 436 - Structure of American/Alaskan Education</td>
<td>3</td>
</tr>
<tr>
<td>MUS 437 - Music Theory, History and Appreciation</td>
<td>3</td>
</tr>
<tr>
<td>MUS 438 - Composition in Cross-Cultural Classrooms</td>
<td>3</td>
</tr>
<tr>
<td>MUS 439 - Elementary School Music Methods (same as ED 309)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Required Education Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 201 - Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 407 - Reading Strategies for Secondary Teachers</td>
<td>3</td>
</tr>
<tr>
<td>ED 454 - Student Teaching</td>
<td>12</td>
</tr>
<tr>
<td>ED 345 - Sociology of Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 346 - Structure of American/Alaskan Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 347 - Music Theory, History and Appreciation</td>
<td>3</td>
</tr>
<tr>
<td>ED 348 - Composition in Cross-Cultural Classrooms</td>
<td>3</td>
</tr>
<tr>
<td>ED 450 - Cultural Influences in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

### 3. Minimum credits required

3. Minimum credits required: 131

The applied music credit minimums defined for the major or area of performance may be distributed over more than one instrumental area provided that the required level of competency is achieved for one instrument.

### Music - M.A. or M.A.T. Degree

Each graduate student's program is individually tailored and designed to meet the student's professional interests and aspirations, consistent with university principles and procedures.

Students may select from the following areas of specialization for the M.A. degree: performance, music education, music theory/composition, music history, and Alaskan ethnomusicology.

The master of arts in teaching is designed primarily as a functional program for the public school music teacher. Areas of specialization are instrumental, vocal, music supervision, and elementary specialist.

The program is determined by the student and his/her committee.

For complete information on the graduate programs in music, see the UAF Graduate Catalog.
Natural Resources Management

School of Agriculture and Land Resources Management

Degrees: B.S., M.S.

Minimum Requirements for Degree: B.S. — 130 credits; M.S. — 30-35 credits

The basic natural resources management curriculum is designed to provide students with a broad education in the various natural resources and their related applied fields. Programs can be tailored to specific interests of students and can combine the natural resources basic program with such fields as education, communications or political science or with greater depth in natural science and resources. The program is designed for students desiring a career in resource management or in other fields in which knowledge of resource management is useful, students planning to proceed to advanced study, and students of many plans who wish to be better informed citizens about today’s important resource issues. The curricula for the B.S. in natural resources management/ forestry and the B.S. in natural resources management/agriculture degree are designed to provide the same basic science background and much the same basic resource background as the general degree, but, in addition, include greater depth in either forestry or agriculture. (The NRM/forestry degree is not equivalent to an accredited B.S. in forestry degree.) The emphasis in aviation integrates specialized aircraft use in resource management through courses in Aviation Technology available in the School of Career and Continuing Education.

Practical experience, “hands on” field and laboratory activities and applied aspects are stressed throughout the program. Internships and work-study arrangements are often available—with or without credit—with or without pay—for qualified students.

Requirements

Courses required for the majors may also be used to satisfy the general university requirements as appropriate.

DIVISION OF RESOURCE MANAGEMENT

Natural Resources Management — B.S. Degree

1. Complete general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements: Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 105X-106X</td>
<td>Fundamentals of Biology, I and II</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 271</td>
<td>Principles of Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 100X-100X</td>
<td>General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>ECON 235</td>
<td>Intro. to Nat. Resource Econ.</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 101</td>
<td>The Dynamic Earth</td>
<td>3</td>
</tr>
<tr>
<td>NRM 103</td>
<td>Conservation of Natural Resources</td>
<td>3</td>
</tr>
<tr>
<td>NRM 201</td>
<td>Processes of Natural Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM 251</td>
<td>Silvics and Forestry</td>
<td>3</td>
</tr>
<tr>
<td>NRM 310</td>
<td>Agricultural Concepts and Techniques</td>
<td>3</td>
</tr>
<tr>
<td>NRM 340</td>
<td>Natural Resources Measurements</td>
<td>3</td>
</tr>
<tr>
<td>NRM 370</td>
<td>Introduction to Watershed Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM 380</td>
<td>Soils</td>
<td>3</td>
</tr>
<tr>
<td>NRM 400</td>
<td>Natural Resource Policies</td>
<td>3</td>
</tr>
<tr>
<td>or NRM 401</td>
<td>Agricultural Law</td>
<td>3</td>
</tr>
<tr>
<td>NRM 430</td>
<td>Land Use Planning</td>
<td>3</td>
</tr>
<tr>
<td>NRM 460</td>
<td>Outdoor Recreation</td>
<td>3</td>
</tr>
<tr>
<td>WLF 201</td>
<td>Wildlife Management Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Plus at least 12 credits from the following courses in the environment and/or resources. Approved courses not listed here may at times be applied toward this requirement. Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM 102</td>
<td>Practicum in Natural Resources</td>
<td>1-3</td>
</tr>
<tr>
<td>NRM 211</td>
<td>Introduction to Agronomy and Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>NRM 320</td>
<td>Introduction to Animal Science</td>
<td>3</td>
</tr>
<tr>
<td>NRM 360</td>
<td>Outdoor Recreation Planning</td>
<td>3</td>
</tr>
<tr>
<td>NRM 411</td>
<td>Plant Propagation</td>
<td>3</td>
</tr>
<tr>
<td>NRM 450</td>
<td>Forest Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM 460</td>
<td>Interpretive Services</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 471</td>
<td>Population Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 472</td>
<td>Communities and Ecosystems</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 490</td>
<td>Water Pollution Biology</td>
<td>3</td>
</tr>
<tr>
<td>EQS 603</td>
<td>Solid Waste and Air Pollution</td>
<td>3</td>
</tr>
</tbody>
</table>

4. The total program must include a minimum of 12 credits in the following social sciences: anthropology, economics, sociology, political science and/or psychology. In addition, a demonstrated proficiency in computer applications prior to the junior year is required.

5. Minimum credits required: 130

DIVISION OF FOREST SCIENCES

Natural Resources Management/Forestry — B.S. Degree

1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements: Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 239</td>
<td>Introduction to Plant Biology</td>
<td>4</td>
</tr>
<tr>
<td>NRM 400</td>
<td>Natural Resource Policies</td>
<td>3</td>
</tr>
<tr>
<td>or NRM 401</td>
<td>Natural Resource Legislation</td>
<td>3</td>
</tr>
<tr>
<td>NRM 430</td>
<td>Land Use Planning</td>
<td>3</td>
</tr>
<tr>
<td>WLF 201</td>
<td>Wildlife Management Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Complete the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 112</td>
<td>Elementary Surveying</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 239</td>
<td>Introduction to Plant Biology</td>
<td>4</td>
</tr>
<tr>
<td>NRM 450</td>
<td>Forest Management</td>
<td>3</td>
</tr>
<tr>
<td>NRM 451</td>
<td>Regeneration and Silviculture of Northern Boreal Forests</td>
<td>3</td>
</tr>
<tr>
<td>NRM 452</td>
<td>Forest Protection</td>
<td>3</td>
</tr>
<tr>
<td>NRM 453</td>
<td>Harvesting and Utilization of Forest Products</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 422</td>
<td>Geoscientific Applications of Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 408</td>
<td>Field and Airphoto Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FISH 430</td>
<td>Fisheries Management</td>
<td>3</td>
</tr>
</tbody>
</table>

4. Complete nine credits from the following list of restricted electives:

- GEOS 422 — Geoscientific Applications of Remote Sensing
- GEOS 408 — Field and Airphoto Analysis
- FISH 430 — Fisheries Management
DIVISION OF PLANT AND ANIMAL SCIENCES

Natural Resources Management/Agriculture—B.S. Degree

1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following core (major) requirements for the agriculture option:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 105X-106X</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 271</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 105X-106X</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>6</td>
</tr>
<tr>
<td>ECON 235</td>
<td>3</td>
</tr>
<tr>
<td>ECON 335</td>
<td>3</td>
</tr>
<tr>
<td>STAT 200</td>
<td>3</td>
</tr>
<tr>
<td>NRM 101</td>
<td>3</td>
</tr>
<tr>
<td>NRM 102</td>
<td>3</td>
</tr>
<tr>
<td>NRM 211</td>
<td>3</td>
</tr>
<tr>
<td>NRM 310</td>
<td>3</td>
</tr>
<tr>
<td>NRM 320</td>
<td>3</td>
</tr>
<tr>
<td>NRM 380</td>
<td>3</td>
</tr>
<tr>
<td>NRM 480</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Complete a minimum of 26 credits in the following natural resource electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 101</td>
<td>4</td>
</tr>
<tr>
<td>NRM 201</td>
<td>3</td>
</tr>
<tr>
<td>NRM 251</td>
<td>3</td>
</tr>
<tr>
<td>NRM 290</td>
<td>3</td>
</tr>
<tr>
<td>NRM 312</td>
<td>3</td>
</tr>
<tr>
<td>NRM 313</td>
<td>3</td>
</tr>
<tr>
<td>NRM 324</td>
<td>3</td>
</tr>
<tr>
<td>NRM 340</td>
<td>3</td>
</tr>
<tr>
<td>NRM 370</td>
<td>3</td>
</tr>
<tr>
<td>NRM 380</td>
<td>3</td>
</tr>
<tr>
<td>NRM 400</td>
<td>3</td>
</tr>
<tr>
<td>NRM 401</td>
<td>3</td>
</tr>
<tr>
<td>NRM 409</td>
<td>3</td>
</tr>
<tr>
<td>NRM 411</td>
<td>3</td>
</tr>
<tr>
<td>NRM 412</td>
<td>3</td>
</tr>
<tr>
<td>NRM 420</td>
<td>3</td>
</tr>
<tr>
<td>NRM 431</td>
<td>3</td>
</tr>
<tr>
<td>NRM 433</td>
<td>3</td>
</tr>
<tr>
<td>NRM 434</td>
<td>3</td>
</tr>
<tr>
<td>NRM 435</td>
<td>3</td>
</tr>
<tr>
<td>NRM 441</td>
<td>3</td>
</tr>
</tbody>
</table>

4. Complete a minimum of 12 credits from the following list of courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 239</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 342</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 362</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 331</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 406</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 410</td>
<td>3</td>
</tr>
</tbody>
</table>

5. Complete a minimum of 12 credits in one of the following fields or subject areas beyond those taken to fulfill categories 2 and 3 above:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLF 303</td>
<td>3</td>
</tr>
<tr>
<td>WLF 417</td>
<td>3</td>
</tr>
<tr>
<td>PS 350</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 331</td>
<td>3</td>
</tr>
<tr>
<td>NRM 300</td>
<td>3</td>
</tr>
</tbody>
</table>

6. The total program must include a minimum of 12 credits in the following social sciences: anthropology, economics, sociology, political science, and/or psychology in addition, a demonstrated proficiency in computer applications prior to the junior year is required.

7. Minimum credits required: 130

Preforestry Program

Note: See Forestry (Cooperative Program)

Environmental Quality Engineering
Computer Science
Economics
Education
Geography
Geosciences
Political Science
Rural Development
Statistics
Wildlife Management

MINOR in Natural Resources Management

A minor in Natural Resources Management requires completion of NRM 101 and 15 credits of any other NRM courses, 6 credits of which must be upper division. The minor program must be approved by an NRM advisor.

Natural Resources Management — M.S. Degree

For complete information on the graduate program in natural resource management, see the UAF Graduate Catalog.

Northern Studies

Interdisciplinary

Degrees: B.A., M.A.
Minimum Requirements for Degree: B.A. — 130 credits; M.A. — 30 or more credits

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 major in northern studies is interdisciplinary.

The northern studies curriculum is centered around an interdisciplinary seminar, the Northern Studies Seminar. NS 484, which is taken in the senior year. Students also must complete 10 courses, constituting a core program and select an additional two courses of their choice from the disciplines represented in the core curriculum.

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the U.S.S.R., see Study Abroad.

Requirements

Northern Studies — B.A. Degree

1. Complete general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 104X</td>
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</tr>
<tr>
<td>PS 210</td>
<td>3</td>
</tr>
<tr>
<td>PS 263</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 242</td>
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<tr>
<td>ANTH 252</td>
<td>3</td>
</tr>
<tr>
<td>HIST 384</td>
<td>3</td>
</tr>
<tr>
<td>NS 484</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 15 credits from two of the following groups:

Anthropology:

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>ANTH 300</td>
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<tr>
<td>ANTH 320</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 321</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 382</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>3</td>
</tr>
</tbody>
</table>

Geography:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 202</td>
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</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 306</td>
<td>3</td>
</tr>
</tbody>
</table>

History:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 320</td>
<td>3</td>
</tr>
<tr>
<td>HIST 340</td>
<td>3</td>
</tr>
</tbody>
</table>

Natural Resources Management — M.S. Degree

For complete information on the graduate program in natural resource management, see the UAF Graduate Catalog.
HIST 344 — Modern Russian .................................................. 3
HIST 354 — Canadian History to 1867 .............................. 3
HIST 355 — Canadian History 1867 to Present .............. 3
HIST 375 — History of the Northern Pacific ................. 3
HIST 380 — Polar Exploration and Its Literature ........... 3
HIST 382 — History of Circumpolar Research ............. 3
HIST 460 — Russian American ........................................ 3

Political Sciences:
PS 310 — The Politics of Post-Industrial States ............. 3
PS 311 — Government and Politics of the Soviet Union .. 3
PS 321 — International Politics .................................. 3
PS 322 — International Law and Organizations ........... 3
PS/ANS 325 — Native Self Government ......................... 3
PS/ANS 450 — Comparative Aboriginal Rights and Policies 3
PS 481 — Geopolitics and International Environ........ 3

Humanities:
ANS 301 — Native Cultural Heritage Documentation .... 3
ART 364 — Native Art of Alaska ................................. 3
ENGL 348 — Narrative Art of Alaska Native Peoples ....... 3
ENGL 350 — Literature of Alaska and the Yukon Territory 3
MUS 441 — Alaska Native Music and Social Change ....... 3

Two semesters of a northern language, such as Eskimo, Russian, or
Danish ................................................................. 10

3. Minimum credits required .................................. 130

*Students are encouraged to use the major in conjunction with a
discipline-based major. Double majors linking Northern Studies with,
for example, Alaska Native studies, anthropology, geography, history,
or political science may double count a maximum of 9 credits from
the groups listed above toward the major. Other majors may
double count a maximum of 9 credits toward their university distribu-
tion requirements.

Minor in Northern Studies

A minor in Northern Studies requires the completion of the core
courses, excluding NS 484, for a total of 18 credits.

Northern Studies — M.A. Degree

The M.A. in northern studies provides graduate academic study of
northern policy issues and the cultural, historical, economic, and polit-
cal contexts of the circumpolar north.

For complete information on the graduate program in northern
studies, see the UAF Graduate Catalog.

Nursing

University of Alaska Fairbanks/
University of Alaska Anchorage
Cooperative Program

For students interested in pursuing a Bachelor of Science Degree in
Nursing, a satellite nursing program is offered at UAF through the
University of Alaska Anchorage. The first five semesters of the
four-year program may be taken in Fairbanks; the student must then
transfer to Anchorage to complete the final three semesters.

The mission of the School of Health Professions is to educate stu-
dents for productive citizenship, personal growth, and professional
nursing practice. Undergraduate students are provided both the theory
and clinical base to enable them to assess, plan, implement, and evalu-
ate health care to meet the needs of individuals, families, groups, and
communities whose health status varies qualitatively and quantita-
tively. Instruction and clinical experiences are designed to maximize
the student's breadth of understanding of the unique health care needs
of various age and sociocultural groups.

The program is designed to reflect Alaskan health care needs and
delivery systems, although the graduate is prepared for beginning
practice positions in other geographic areas as well.

The baccalaureate program is accredited by the Alaska Board of
Nursing and the National League for Nursing. Graduates of the pro-
gram are eligible to write the National Council Licensure Examination
for licensure as a Registered Professional Nurse in any of the 50 states.
The program also provides students with the academic base for gradu-
ate study.

For further information on the baccalaureate nursing program
and continuing education offerings in nursing, please contact: UAA School
of Health Professions, Arctic Health Research Building, Suite 106.
Office Procedures

Differential Survey of the Energy Menu Thermodynamics Calculating Geology

M.S. Oogre

Re sorvoir Rock Properties

Cornputer

Office Procedures

Busin ess Communications

Int ermedia

M.S. Oogre

33 additional credits.

The

Office Professions Certificate

1. Complete the following major specialty requirements: Credits

Acct. 101 - Elementary Accounting .............................................. 3

OP 142 - Office Accounting I ............................................. 2

OP 105 - Keyboad III / Intermediate Typewriting ...................... 3

OP 210 - Legal Typewriting ............................................. 2

OP 219 - Legal Machine Transcription ..................................... 1

OP 211 - Medical Typewriting ............................................. 2

OP 214 - Medical Machine Transcription ..................................... 1

OP 244 - Office Procedures ............................................. 3

Any other CAPS, ABUS or OP course ........................................ 3

Certificate Total ........................................................................ 90-32

OEGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

Office Professions - Certificate

1. Complete the following major specialty requirements: Credits

Acct. 101 - Elementary Accounting .............................................. 3

OP 142 - Office Accounting I ............................................. 2

OP 105 - Keyboarding III / Intermediate Typewriting ...................... 3

OP 210 - Legal Typewriting ............................................. 2

OP 219 - Legal Machine Transcription ..................................... 1

OP 211 - Medical Typewriting ............................................. 2

OP 214 - Medical Machine Transcription ..................................... 1

OP 244 - Office Procedures ............................................. 3

Any other CAPS, ABUS or OP course ........................................ 3

Certificate Total ........................................................................ 90-32

Petroleum Engineering

School of Mineral Engineering

Department of Petroleum Engineering

Degrees: B.S., M.S.

Minimum Requirements for Degrees: B.S. - 133 credits; M.S. - 30-33 additional credits.

Petroleum engineering at UAF offers a unique look at the challenging problems facing the petroleum industry. Both the bachelor of science and the master of science degrees are available. Requirements for the degrees focus on many disciplines, including mathematics, physics, chemistry, geology, and engineering science. In addition to courses in petroleum engineering, they include drilling, formation evaluation, production, reservoir engineering, computer simulation and enhanced oil recovery.

The curriculum at UAF was designed to prepare 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 Department of Petroleum Engineering offers one of the most modern and challenging degree programs available.

Requirements

Petroleum Engineering - B.S. Degree

1. Complete the general university requirements.

2. Complete the following degree and program (major) requirements:

First Year

Fall Semester

16 Credits

PETE 103 - Survey of the Energy Industry ....................................... 2

MATH 200 - Calculus I .......................................................... 4

CHEM 105X - General Chemistry ........................................... 3

ENGL 111X - Methods of Written Communication ...................... 3

Perspectives on the Human Condition ........................................ 3

Spring Semester

17 Credits

PETE 201 - Calculus II .......................................................... 4

CHEM 106X - General Chemistry II ......................................... 3

SPC 131X or 141X - Fundamentals of Oral Communication ............. 3

Second Year

Fall Semester

17 Credits

PETE 205 - Introduction to Petroleum Drilling and Production ................... 3

MATH 210 - Calculus III ...................................................... 4

PHYS 211X - General Physics I .............................................. 4

ENGL 211X/214X - Intermediate Exposition ................................. 3

Perspectives on the Human Condition ........................................ 3

Spring Semester

17 Credits

ES 204 - Mechanics ............................................................. 4

MATH 302 - Differential Equations .......................................... 3

PHYS 212X - General Physics II ............................................. 3

ES 346 - Basic Thermodynamics ............................................. 3

Perspectives on the Human Condition ........................................ 3

Third Year

Fall Semester

16 Credits

PETE 301 - Reservoir Rock Properties ....................................... 3

MATH 310 - Numerical Analysis ............................................. 3

ES 331 - Mechanics of Materials ........................................... 3

ES 341 - Fluid Mechanics ...................................................... 3

Perspectives on the Human Condition ........................................ 3

Spring Semester

18 Credits

PETE 302 - Well Logging ...................................................... 3

PETE 303 - Underground Fluid Behavior and Lab ......................... 4

PETE 420 - Drilling Eng. & Lab ............................................. 4

ME 441 Heat and Mass Transfer ............................................. 3

GEOS 370 - Struct. Geol. for Petr. Engr ..................................... 4

Fourth Year

Fall Semester

18 Credits

PETE 407 - Production Eng. & Lab ......................................... 4

PETE 421 - Subsurface Engineering .......................................... 3

PETE 431 - Natural Gas Engineering .......................................... 3

PETE 470 - Reservoir Engineering ........................................... 3

*Engineering Elective (e.g. ME 415 or ES 307) .............................. 3

Technical Elective (e.g. GE 603 Arctic Engr) ............................... 3

Spring Semester

16 Credits

PETE 456 - Pet. Eval. and Econ. Dec ......................................... 3

PETE 466 - Petroleum Recovery Meth ........................................ 3

PETE 476 - Well Test Analysis .............................................. 2

PETE 489 - Reservoir Simulation ............................................. 2

Perspectives on the Human Condition ........................................ 4

Notes:

* GEOS 101 may be taken in a fall semester in place of GE 261.

* As approved by advisor.

Petroleum Engineering - M.S. Degree

The M.S. program is intended to provide the student with an advanced treatment of petroleum engineering concepts. Both a thesis and non-thesis option are available. A number of generous research assistantships are available. Applicants should possess a B.S. degree in engineering or the natural sciences.

For complete information on the graduate program in Petroleum Engineering, see the UAF Graduate Catalog.
Philosophy

College of Liberal Arts
Department of Philosophy and Humanities

Degree: B.A.
Minimum Requirements for Degree: 130 credits

The courses in philosophy are designed to confront the student with the fundamental problems of Western philosophical heritage and introduce him/her to independent reflection on them, thus broadening his/her perspectives for the various areas of specialization in science, the social sciences and humanities.

Requirements

Philosophy — B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following foundation requirements:
   (May be used to meet general degree requirements)
   6 credits of mathematics at the 100 level or above.
   Two years at the college level in a non-English language.
3. Complete the following program (major) requirements:
   36 credits in philosophy, including:
   Credits
   PHIL 201 - Introduction to Philosophy ........................................ 3
   PHIL 202 - Introduction to Eastern Philosophy .............................. 3
   PHIL 204 - Introduction to Logic .................................................. 3
   PHIL 351-352 - History of Philosophy and Science ...................... 6
   PHIL 471 - Contemp. Philosophical Problems ................................ 3
   PHIL 486 - B.A. Thesis in Philosophy ........................................... 3
   PHIL 483 - Special Topics ........................................................... 3

Choose two of the following:

PHIL 321 - Aesthetics ................................................................. 3
PHIL 322 - Ethics ............................................................................ 3
PHIL 341 - Epistemology ............................................................... 3
PHIL 342 - Metaphysics ................................................................. 3
PHIL 381 - Topics in Logics ............................................................ 3

Choose two of the following:

PHIL 481 - Philosophy of Science .................................................... 3
PHIL 482 - Comparative Religion ...................................................... 3
PHIL 483 - Philosophy of Social Science ......................................... 3
PHIL 485 - Topics in Comparative Philosophies ................................. 3

4. Successfully complete a comprehensive oral examination conducted by the staff of the Department of Philosophy covering all course work in philosophy. The student is to arrange for the examination at the beginning of the last semester of his major study.

5. Minimum credits required............................................................... 130

MINOR in Philosophy:
A minor in philosophy requires 18 credits of approved philosophy courses including:

Credits
PHIL 201 - Introduction to Philosophy ........................................... 3
PHIL 351-352 - History of Philosophy and Science ...................... 6
PHIL 471 - Contemp. Philosophical Problems ................................ 3

Choose six credits from the following:

PHIL 204 - Introduction to Logic .................................................. 3
PHIL 202 - Intro. to Eastern Philosophy ........................................... 3
PHIL 203 - Intro. to Logic ............................................................... 3
PHIL 322 - Ethics ............................................................................ 3
PHIL 341 - Epistemology ............................................................... 3
PHIL 342 - Metaphysics ................................................................. 3
PHIL 481 - Philosophy of Science .................................................... 3
PHIL 482 - Comparative Religion ...................................................... 3
PHIL 483 - Philosophy of Social Science ......................................... 3
PHIL 485 - Topics in Comparative Philosophies ................................. 3

Physical Education

College of Liberal Arts
Department of Physical Education

Degrees: B.A., B.S.
Minimum Requirements for Degrees: B.A. — 130 credits; B.S. — 130 credits

The curriculum in physical education encompasses three programs of instruction: an academic discipline, a teacher certification specialty, and a program for individual development in physical activities.

1. The academic discipline of physical education, which can be a major or minor area of study for a bachelor's degree, is the study of human beings engaged in sport and physical activities which serve as expressions of their physical and competitive natures.
2. Courses which relate to teaching physical education or coaching athletic teams in school or recreation programs can be added to academic discipline courses to complete a teaching or coaching specialty for state certification.
3. Finally, a program of courses is provided for the general and professional student to acquire individual skills, attitudes, knowledge, and physical fitness for participation in selected sports and physical activities.

Requirements

Physical Education — B.A. or B.S. Degree
1. Complete the general university requirements and B.A. or B.S. degree requirements.
2. Complete the following background requirements:

Credits
CHEM 103X or 104X — Basic General Chemistry/Beg. in Biochemistry .......... 3
BIOL 111-112 — Human Anatomy and Physiology I and II .............. 8
MATH 107 — Elementary Functions or MATH 116 — Algebra for Business and Economics .................. 3

3. Complete the following program (major) requirements:

Required Courses (22 credits)*
PHIL 205 — Introduction to the Human Movement Sciences ....... 3
PHIL 232 — Analysis of Human Movement ...................................... 3
PHIL 346 — Advanced First Aid .................................................... 3
PHIL 351 — Motor Development ................................................... 3
PHIL 405 — Concepts and Design of Physical Fitness Activities .......... 2
PHIL 421 — Physiology of Exercise ................................................ 3
PHIL 432 — Biomechanics of Physical Performance ......................... 3
PHIL 457 — Adapted Programs of Physical Activity ......................... 3

Elective Courses (select a minimum of 8 credits)
For Elementary, Secondary, or K-12 Teaching Certification, students are required to complete one winter sport, one individual sport, one team sport, and five electives from the 200 fundamentals series.

PHIL 211 — Fundamentals of Softball ............................................ 1
PHIL 212 — Fundamentals of Basketball ........................................ 1
PHIL 213 — Fundamentals of Wrestling .......................................... 1
PHIL 214 — Fundamentals of Snow Sports ..................................... 1
PHIL 215 — Fundamentals of Volleyball ......................................... 1
PHIL 216 — Fundamentals of Rhythms ............................................ 1
PHIL 217 — Fundamentals of Rhythmic Activities ......................... 1
PHIL 218 — Fundamentals of Soccer ............................................. 1
PHIL 219 — Fundamentals of Aquatics .......................................... 1
PHIL 220 — Fundamentals of Wrestling .......................................... 1
PHIL 221 — Fundamentals of Gymnastics ....................................... 1
PHIL 222 — Fundamentals of Track and Field ................................ 1

Elective Courses (select a minimum of 4 courses)
PHIL 300 — Advanced Techniques of Gymnastics ......................... 1
PHIL 302 — Advanced Techniques of Basketball .......................... 1
PHIL 303 — Advanced Techniques in Ice Sports ............................ 1
PHIL 304 — Advanced Techniques in Snow Sports ....................... 1
PHIL 305 — Techniques in Volleyball ............................................. 1
PHIL 306 — Techniques in Teaching Creative Dance ....................... 1
PHIL 307 — Techniques in Camping and Outdoor Recreation ........... 1
PHIL 308 — Techniques in Track and Field .................................... 1
PHIL 309 — Techniques in Aquatics ............................................. 1
PHIL 310 — Techniques in Teaching Folk and Square Dance ........... 1

Elective Courses (select a minimum of 7 credits)
PHIL 317 — Motor Learning .......................................................... 3
PHIL 321 — Practicum in Physical Education .................................. 1
PHIL 327 — Movement Activities for Children .............................. 2
PHIL 341 — Theory of Basketball ............................................... 3
PHIL 345 — Methods of Teaching P.E. ........................................... 3
PHIL 411 — Sports & Physical Activity in American Society ............ 3
PHIL 412 — Principles and Problems in Athletic Coaching ............. 3
PHIL 425 — Administration of P.E. and Athletics ......................... 3
PHIL 440 — Prevention and Care of Athletic Injuries ..................... 3
PHIL 442 — Evaluation in Physical Education ............................... 3

4. Minimum credits required............................................................... 130

*Required by the physical education department for those majors who wish to be considered for Elementary, Secondary or K-12 Teaching Certification.
** Required for K-12 Certification.
Elementary or Secondary Teaching Certification:
In addition to the 22 required, 8 elective credits from the 200 (Fundamentals) series, and 4 elective classes from the 300-310 series, students working toward teacher certification with the B.S. or B.A. in Physical Education must complete:
PE 321 - Practicum in Physical Education ............................................. 1
PE 327 - Movement Activities for Children ............................................ 2
PE 406 - Methods and Materials in Teaching P.E. .................................. 3
PE 426 - Administration of P.E. and Athletics ...................................... 3
PE 442 - Measurement and Evaluation in Physical Education ................. 3
AND the required courses from the Education Department.

K-12 Teaching Certification:
In addition to the 22 required credits, 8 elective credits from the 200 (Fundamentals) series, and 4 elective classes from the 300-310 series, students working toward teacher certification with the B.S. or B.A. in Physical Education must complete:
PE 306 - Techniques in Teaching Creative Dance ................................... 1
PE 307 - Techniques in Camping and Outdoor Recreation ...................... 1
PE 321 - Practicum in Physical Education ............................................ 2
PE 327 - Movement Activities for Children ............................................ 2
PE 406 - Methods of Teaching Physical Education ................................. 3
PE 411 - Sports and Physical Activity in American Society .................... 3
PE 426 - Administration of P.E. and Athletics ...................................... 3
PE 442 - Measurement and Evaluation in Physical Education ................. 3
*Students are required to complete one semester (1 credit) in an approved practicum with elementary school children and one semester (1 credit) of an approved practicum on campus.

And completion of either the elementary or secondary certification program through the Department of Education, including ED 454: Student Teaching K-12.

MINOR in Physical Education:
For a minor in P.E. for a B.A. degree, complete 18 approved credits in Physical Education at the 200-level or above.

Physical Therapy
Pre-Professional Program

Physical therapy is a health profession dedicated to the promotion of health, the prevention of disease, and to providing the assessment, evaluation and rehabilitation of the muscular, skeletal, and nervous systems after injury or disease. Typically, physical therapists work in rehabilitation units in hospitals, in conjunction with orthopedic practices, in private rehabilitation practices, and in sports medicine clinics. Along with delivering physical rehabilitation, many also serve as administrators, researchers and educators.

Physical therapy education typically consists of a program two years in length. Some programs lead to a bachelor's degree, others offer a certificate, while still others lead to a master's degree. The trend is toward the latter and requires completion of a bachelor's degree prior to admission. As with most health care professions, the first half of the training consists of classroom instruction, with the second emphasizing clinical practice. After completion of programs accredited by the American Physical Therapy Program, students are eligible to test for licensure in all 50 states.

Acceptance to physical therapy programs is very competitive and is based upon several factors. Included are overall academic achievement (most requiring a 3.0 GPA minimum), achievement in foundational sciences, and work experience in health-care situations. Graduate programs usually require the Graduate Record Examination and/or the Miller Analogies Test. UAF does not prescribe a specific major for pre-physical therapy students. Rather, students complete a series of courses which are required for admission to most programs: physics (PHYS 103X, 104X), anatomy and physiology (Biol 111, 112), and statistics (STAT 301). Careful planning is necessary as course requirements over and above these differ between schools.

Students considering a career in physical therapy should contact the Academic Advising Center. There, students will be assigned an advisor to assist with program planning, exploration of professional schools and licensure requirements.

K-12 Teaching Certification:
In addition to the 22 required credits, 8 elective credits from the 200 (Fundamentals) series, and 4 elective classes from the 300-310 series, students working toward teacher certification with the B.S. or B.A. in Physical Education must complete:
PE 306 - Techniques in Teaching Creative Dance ................................... 1
PE 307 - Techniques in Camping and Outdoor Recreation ...................... 1
PE 321 - Practicum in Physical Education ............................................ 2
PE 327 - Movement Activities for Children ............................................ 2
PE 406 - Methods of Teaching Physical Education ................................. 3
PE 411 - Sports and Physical Activity in American Society .................... 3
PE 426 - Administration of P.E. and Athletics ...................................... 3
PE 442 - Measurement and Evaluation in Physical Education ................. 3
*Students are required to complete one semester (1 credit) in an approved practicum with elementary school children and one semester (1 credit) of an approved practicum on campus.

And completion of either the elementary or secondary certification program through the Department of Education, including ED 454: Student Teaching K-12.

MINOR in Physical Education:
For a minor in P.E. for a B.A. degree, complete 18 approved credits in Physical Education at the 200-level or above.

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Pre-Professional Program

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Students considering a career in physical therapy should contact the Academic Advising Center. There, students will be assigned an advisor to assist with program planning, exploration of professional schools and licensure requirements.

Physics

College of Natural Sciences
Department of Physics

Degrees: B.A., B.S., M.S., M.A.T., Ph.D.

Minimum Requirements for Degrees:
B.A. — 130 credits; B.S. — 130 credits; M.S. — 30 additional credits; M.A.T. — 30 additional credits; Ph.D. — no fixed credits

The physics department is responsible for the physics, space physics, atmospheric sciences, and the general science programs. See space physics and atmospheric sciences listings for more information on degree requirements in these disciplines.

The science of physics is concerned with the nature of matter and energy and encompasses all phenomena in the physical world from elementary particles to the structure and origin of the universe. Physics provides, together with mathematics and chemistry, the foundation of work in all fields of physical science and engineering, and contributes to other fields such as biology and medicine.

The undergraduate curriculum provides a solid foundation in general physics with emphasis on its experimental aspects. Furthermore, it is given to the physics student to study areas in applied physics such as atmospheric physics, space physics and engineering physics. A student completing this curriculum should be prepared for careers in education and industry, and for advanced work in the fields of physics, applied physics, and related sciences.

Requirements

Physics — B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements: Complete the foundation courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 113 — Concepts of Physics</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 211X-212X — General Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 213 — Elementary Modern Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete a minor in mathematics, which includes MATH 200-201-202, and six credits at the 300-level or above.

Complete 20 additional credits of approved courses in physics.

3. Minimum credits required .......................... 130

Suggested Curriculum for B.S. Degree

First Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Freshman</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>PHYS 111X — Methods of Written Communication</td>
<td>3</td>
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</tr>
<tr>
<td>MATH 200 — Calculus</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 105 — General Chemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BIOL 105X or GEOI 101X</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYI 113 — Concepts of Physics</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>credits</td>
<td>credits</td>
</tr>
<tr>
<td>Sophomore</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>MATH 201 — Calculus</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 106 — General Chemistry</td>
<td>4</td>
<td></td>
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<td>ES 201 — Computer Techniques</td>
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Junior Year

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<th>Semester</th>
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<tr>
<td>Junior</td>
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<tr>
<td>MATH 212 — General Physics</td>
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<tr>
<td>PHYS 211X — Intermediate Exposition with Modes of Literature or ENGL 213X — Intermediate Exposition</td>
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<td>GEOI 101X or BIOL 101X</td>
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Senior Year

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<th>Semester</th>
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<tr>
<td>Senior</td>
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<tr>
<td>MATH 202 — Differential Equations</td>
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<td>PHYS 213 — Elementary Modern Physics</td>
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Perspectives on the Human Condition ........................................... 6
MATH 314 - Linear Algebra ......................................................... 3
Free electives .............................................................................. 1

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<th>Third Year</th>
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<tr>
<td>Full Semester</td>
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<tr>
<td>MATH 421 - Applied Analysis I ........................................ 4</td>
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<td>PHYS 311 - Mechanics ...................................................... 4</td>
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<tr>
<td>PHYS 331 - Electricity and Magnetism ................................ 3</td>
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<td>PHYS 381 - Physics Laboratory ........................................... 2</td>
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<td>Perspectives on the Human Condition ................................. 3</td>
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<td>Spring Semester</td>
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<tr>
<td>MATH 422 - Applied Analysis II ......................................... 4</td>
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<td>PHYS 312 - Mechanics ...................................................... 4</td>
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<td>PHYS 332 - Electricity and Magnetism ................................ 3</td>
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<tr>
<td>PHYS 482 - Optics ............................................................ 2</td>
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<td>Perspectives on the Human Condition ................................. 3</td>
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<table>
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<th>Fourth Year</th>
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<td>Full Semester</td>
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<tr>
<td>PHYS 411 - Modern Physics ............................................. 4</td>
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<tr>
<td>PHYS 313 - Thermodynamics ............................................. 4</td>
<td></td>
</tr>
<tr>
<td>PHYS 462 - Optics ........................................................... 3</td>
<td></td>
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<tr>
<td>ES 307 - Elements of Electrical Engineering ...................... 3</td>
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</table>
| Free elective .................................................................. 1
| Spring Semester | 17 credits |
| PHYS 412 - Modern Physics ............................................. 4 |
| PHYS 445 - Solid State Physics ........................................ 4 |
| ES 308 - Instrumentation and Measurement ......................... 3 |

MINOR in Physics:

- A minor in Physics requires 20 credits: PHYS 103X-104X or PHYS 211-212 and 12 credits selected from PHYS 213 and any 300-400 level course.

- Physics — M.S., M.A.T., or Ph.D. Degree

Graduate work is offered in various areas of physics and applied physics including many of the research areas found at the UAF Geophysical Institute. The research program of the Geophysical Institute currently emphasizes investigations of auroral, ionospheric, magnetospheric and space plasma physics, the physics and chemistry of the upper and middle atmosphere, radio wave propagation and scattering, solar-terrestrial relations, and polar meteorology.

A graduate student may designate his/her major field as physics, space physics or atmospheric sciences. He/she will pursue his/her studies under the supervision of an advisory committee which will advise on the course of study to be followed.

For complete information on the graduate programs in physics, see the UAF Graduate Catalog.

**Political Science**

**College of Liberal Arts**

**Department of Political Science.**

(907) 474-7609

**Degree: B.A.**

**Minimum Requirements for Degree: 130 credits**

The study of political science is the study of man's efforts to create social organizations and processes compatible with our environment. Political science is related to all of the social science disciplines. It is the study of the dynamics of human behavior in the various cultural, national and international spheres.

Students of political science may prepare for teaching or for advanced study in law and the social sciences, or prepare themselves for careers in public service.

**Requirements**

**Political Science — B.A. Degree**

1. Complete general university requirements and B.A. degree requirements.
2. Complete the following social science distribution requirements. (May be used to meet general B.A. requirements): Credits
   - ECON 200 — Principles of Economics (may substitute another economics course for ECON 200 on the recommendation of adviser) .................. 4
   - HIST 131-132 — History of the U.S. .................................... 6
   - JUST 110 — Introduction to Justice

or PSY 101 — Introduction to Psychology or SOC 101 — Introduction to Sociology ........................................... 3

3. Complete 30 credits in political science, beyond PS 101 including:
   - Three credits in Policy and Administration from:
     - PS 102 — Introduction to American Government and Politics ........................................... 3
     - PS 210 — Alaska Government and Politics ................................................................. 3
     - PS 211 — State and Local Government ................................................................. 3
     - PS 212 — Introduction to Public Administration ................................................... 3
     - PS 263 — Alaska Native Politics ............................................................................. 3
   - Six credits in Comparative Politics as follows:
     - PS 141 — Comparative Politics: Western Political Systems ........................................... 3
     - Choose one of the following:
       - PS 202 — Comparative Politics: Non-Western Political Systems and Structures ............ 3
       - PS 310 — The Politics of the Soviet Union and Eastern Europe ................................... 3
       - PS 381 — Government and Politics of China and East Asia ....................................... 3
   - Six credits in International Politics from:
     - PS 321 — International Relations .................................................................................. 3
     - PS 437 — American Foreign Policy ............................................................................. 3
     - PS 480 — The United Nations, Model United Nations and International Administration .... 1-3
     - PS 481 — Geopolitics and the International Environment ........................................... 3
   - Three credits in Law and National Government Institutions from:
     - PS 301 — American Presidency ................................................................................... 3
     - PS 302 — Congress and Public Policy ......................................................................... 3
     - PS 435 — The Supreme Court and Judicial Process .................................................... 3
     - PS 436 — The Courts and Civil Liberties ....................................................................... 3
   - Six credits in Political Theory from:
     - PS 315 — American Political Thought .......................................................................... 3
     - PS 411 — Classical Political Theory ............................................................................. 3
     - PS 412 — Modern Political Theory ............................................................................... 3
     - PS 415 — Contemporary Political Theory ....................................................................... 3
   - Six credits in Political Behavior as follows:
     - PS 222 — Research Methods ....................................................................................... 3
     - Choose one of the following:
       - PS 401 — Political Behavior: Organizations .................................................................. 3
       - PS 402 — Political Behavior: Individuals ....................................................................... 3
       - PS 403 — Public Policy .................................................................................................. 3

MINOR in Political Science

A minor in Political Science requires 15 credits distributed as follows:

<table>
<thead>
<tr>
<th>Credits</th>
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<tr>
<td>PS 101 — Introduction to American Government and Politics ................. 3</td>
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<td>PS 102, 210, 211, 212, or 263 ................................................................ 3</td>
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<tr>
<td>PS 201, 202, 310, 311, or 312 .......................................................... 3</td>
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<tr>
<td>PS 312, 321, 437, 480 or 481 .......................................................... 3</td>
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<tr>
<td>PS 315, 411, 412, or 415 ................................................................. 3</td>
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**Psychology**

**College of Rural Alaska**

**Department of Behavioral Sciences and Human Services**

(907) 474-7240

**Degrees: B.A., B.S.**

**Minimum Requirements for Degrees: 120 credits**

Psychology seeks to guide the student in an understanding of human behavior. The field of psychology is necessary for students who are preparing for graduate study in psychology and also is helpful in preparing for other career fields.

**Requirements**

**Psychology — B.A. or B.S. Degree**

1. Complete the general university requirements and B.A. or B.S. degree requirements.
2. Complete the following departmental core requirements:
PSY 101 — Introduction to Psychology ........................................... 3
*SOC 101 — Introduction to Sociology ........................................ 3
PSY/SOC 250 — Introductory Statistics for Behav. Sci .................... 3
PSY 240 — Develop. Psychology in Cross-Cultural Persp. .......... 3
*ANTH 242 — Native Cultures of Alaska .................................... 3
PSY 270 — Psychology of Adjustment .......................................... 3
PSY 255 — Foundations of Counseling I ..................................... 3
PSY 304 — Personality ............................................................... 3
PSY 330 — Social Psychology ...................................................... 3
PSY 345 — Abnormal Psychology ................................................. 3
PSY 350 — Comparative Psychology ............................................ 3
PSY 356 — Foundations of Counseling II .................................... 3
PSY 370 — Drugs and Drug Dependence ..................................... 3
PSY 380 — Human Behavior in the Arctic .................................. 3
PSY 440 — Learning ................................................................. 3
PSY 445 — Community Psychology ............................................. 3
PSY 450 — Experimental Psychology ......................................... 3
PSY 460 — Physiological Psychology ......................................... 3
PSY 470 — Sensation and Perception .......................................... 3

Minimum credits required for degree: 120

*May be used toward general degree requirements where applicable.

**Courses in this group not used toward the major may be applied toward appropriate general degree requirements.

MINOR in Psychology
Complete 15 credits of psychology courses beyond Psy 101.

Resource Economics

School of Management
Department of Economics

Degree: M.S.
Minimum Requirements for Degree: 30 additional credits.

The M.S. degree in 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, e.g., fisheries, wildlife management, land resources management, agriculture, oil and minerals, water resources and forest management.

For complete information on the graduate program in resource economics, see the UAF Graduate Catalog.

Rural Development

College of Rural Alaska
Department of Rural Development

Degree: B.A.
Minimum Requirements for Degree: 120 Credits

The Department of Rural Development addresses rural/community issues and concerns through a variety of campus and field-delivered academic programs and services. A bachelor of arts in rural development, with a variety of emphasis areas, is the only degree option and it is available in the Bristol Bay, Chukchi, Fairbanks, and Kuskokwim campuses.

Requirements
Rural Development — B.A. Degree

1. Complete the general university requirements and the B.A. degree requirements.*

   *The B.A. general degree requirements of 18 credits in any combination of courses at the 100 level or above in both humanities and social sciences with a maximum of 6 credits in social sciences must contain the following courses:

   Social Sciences:
   ANTH 242 — Native Cultures of Alaska ......................... 3
   ANS 310 — Political Economy of ANCSA ...................... 3
   SOC 405 — Social Change or
   ANS 475 — Alaska Native Social Change ........................ 3

2. Complete the following program (integrated major/minor) requirements:

   Credits
   RD 300 — Rural/SVCY: Political Science in a Global Perspective .... 3
   RD 302 — Community Organization and Dev. Strategies .......... 3
   RD 350 — Community Research and Planning .................... 3
   RD 450 — Managing Community Development Projects .......... 3
   RD 475 — Senior Project ............................................... 3
   RD Elective ........................................................................ 6
   RD or RD Elective ............................................................ 3

   Applied Emphasis (24 credits):
   Complete a minimum of 24 elective credits (in addition to any required prerequisites) in one of the following groupings. These elective credits can also be used to fulfill the humanities, social science, mathematics general requirements for the B.A. degree.

   Applied Land Management Emphasis
   Designed for individuals interested in becoming involved in the management of village corporation lands.
   NRM 101 — Conservation of Natural Resources .................. 3
   NRM 251 — Introduction to Forest Systems ....................... 3
   NRM 380 — Soils .............................................................. 3
   NRM 430 — Natural Resources Legislation ....................... 3
   NRM 450 — Forest Management ........................................ 3
   ANS 425 — Indian Law and Alaska Natives ...................... 3
   ANS 475 — Alaska Native Social Change .......................... 3
   BIOL 271 — Principles of Ecology .................................... 3
   ECON 235 — Intro. to Natural Resource Economics .......... 3
   ECON 301 — The Dynamic Earth ....................................... 3
   WLF 417 — Wildlife Management — Forest and Tundra .... 3
   WLF 419 — Waterfowl and Wetlands Ecology and Management 3
   Approved electives ......................................................... 3 or more

   Local Government Administration Emphasis
   Designed for individuals interested in becoming involved in the administration of small municipal cities and/or IRA Tribal Government.
   ACCT 101 — Elementary Accounting I ............................. 3
   ACCT 303 — Governmental Accounting ............................. 3
   ANS 120 — Cultural Differences in Institutional Settings .... 3
   ANS 425 — Federal Indian Law and Alaska Natives ......... 3
   ANS 475 — Alaska Native Social Change ......................... 3
   ANS 505 — Comparative Political and Legal Systems ....... 3
   PS 101 — Intro. to American Government and Politics .... 3
   VILL 111 — The Legal Environment of Bush ...................... 3
   PS 212 — Introduction to Public Administration ............. 3
   SOC 407 — Formal Organizations ................................. 3
   SPC 330 — Intercultural Communication ........................ 3
   SPC 335 — Organizational Communication .................... 3
   Approved electives ......................................................... 3 or more

   Village Corporation Management Emphasis
   Designed for individuals interested in becoming involved in the management of ANCSA village corporations and related community-based enterprises.
   ACCT 101 — Elementary Accounting I ............................. 3
   ACCT 102 — Elementary Accounting II ............................ 3
   ANTH 306 — Economic Anthropology ................................ 3
   ANS 425 — Federal Indian Law and Alaska Natives ......... 3
   ANS 475 — Alaska Native Social Change ......................... 3
   BA 151 — Introduction to Business .................................. 3
   VILL 111 — The Legal Environment of Bush ...................... 3
   ECON 111 — Economics of Rural Alaska (offered only through on-campus program) ..................................................... 3
   ECON 137 — The Alaskan Economy ................................. 3
   SPC 330 — Intercultural Communication ........................ 3
   SPC 335 — Organizational Communication .................... 3
   SOC 407 — Formal Organizations ..................................... 3
   Approved electives ......................................................... 3 or more

   Community Research and Cultural Documentation
   Designed for individuals interested in becoming involved in accessing, observing and disseminating information at the community level, particularly through community information centers.
   ANS 120 — Cultural Differences in Institutional Settings .... 3
   ANS 301 — Native Cultural Heritage Documentation ....... 3
   ANS 320 — Language & Culture: Appligation of Alaska .... 3
   ANS 351 — Practicum in Native Cultural Expression ......... 3
   ANS 401 — Knowledge of Native Elders .......................... 3
   ANS 421 — Analytical Techniques ..................................... 3
   ED 311 — Intro to Instructional Techniques .................... 3
The science management curriculum is designed for graduate students who will hold executive or managerial positions in engineering, construction, industrial, or governmental organizations. It includes human relations, financial, economic, quantitative, technical and legal subjects useful in solving problems of management.

For complete information on the graduate program in Science Management, see the UA Graduate Catalog.

**Social Work**

**College of Rural Alaska**

**Department of Behavioral Sciences and Human Services**

**Degrees:** B.A.

**Minimum Requirements for Degrees:** B.A. — 120 credits

Graduates in social work qualify for beginning practice positions in child welfare, mental health, services to the aged, family agencies, youth programs, health services, Native corporations, and various other social agencies. Students learn to work with people on a personal level and are placed in a social agency as part of their course work during the senior year. Social work applies knowledge in the behavioral sciences to deal with the emotional and social problems of individuals, families, and communities. The program is offered at the Fairbanks, Anchorage, and Northwest campuses.

The curriculum includes a liberal arts base, foundation requirements in the behavioral sciences, and sequences in social policy and 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.

The UA bachelor’s social work program has attained national accreditation with the Council on Social Work Education.

**Requirements**

**Social Work — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following departmental core requirements:
   * PSY 101 — Introduction to Psychology
   * SOC 101 — Introduction to Sociology
   * SOC 201 — Social Problems
   * SOC 242 — The Family: A Cross-Cultural Perspective
   * SPC 330 — Intercultural Communication

3. Complete the following courses:
   * SWK 103 — Social Work in the Human Services
   * SWK 306 — Social Welfare: Policy and Issues
   * SWK 320 — Rural Social Work
   * SWK 442 — Human Behavior and the Social Environment
   * SWK 460 — Social Work Practice I
   * SWK 461 — Practicum in Social Work I
   * SWK 463 — Social Work Practice II
   * SWK 484 — Practicum in Social Work II
   * SOC 242 — The Family: A Cross-Cultural Perspective

4. Complete 9 credits from the following Special Problems areas:
   * SWK 360 — Child Abuse and Neglect
   * SWK 384 — Seminar in Social Work Practice
   * HMSV 205 — Factors in Health and Disease
   * HMSV 210 — Crisis Intervention
   * HMSV 230 — Alcoholism: Theories of Etiology
   * HMSV 250 — Foundations of Counseling I
   * HMSV 330 — Alcoholism: Treatment and Prevention
   * HMSV 350 — Foundations of Counseling II
   * HMSV 410 — Management of Human Services Programs
   * RD 325 — Community Organization and Development Strategies
   * SOC 310 — Sociology of Later Life

Minimum credits required for degree: 120

*May be used toward B.A. general degree requirements where applicable.*
Sociology

College of Rural Alaska
Department of Behavioral Sciences and Human Services

Degrees: B.A., B.S.
Minimum Requirements for Degrees: 120 credits

Sociology is the study of groups and their influence on personal behavior and culture. It is concerned with social processes that give rise to and shape human language, experience, perception, meaning, and behavior.

Requirements

Sociology — B.A. or B.S. Degree
1. Complete the general university requirements and B.A. or B.S. degree requirements.

2. Complete the following departmental core requirements:
   * PSY 101 — Introduction to Psychology ........................................ 3
   * SOCI 101 — Introduction to Sociology ......................................... 3
   * PSY 240 — Develop. Psychology in Cross-Cult. Persp ........................ 3
   * PSY/SOC 250 — Introductory Statistics for Behav. Sci. ....................... 3
   * PSY/SOC 473 — Social Science Research Methods .......................... 3
   * ANTH 242 — Native Cultures of Alaska ....................................... 3

3. Complete the following Sociology Core requirements:
   SOC 301 — Rural Sociology ......................................................... 3
   PSY/SOC 330 — Social Psychology ............................................... 3
   SOC 363 — Social Stratification .................................................. 3
   SOC 402 — Theories of Sociology ................................................ 3

4. Complete 12 credits from the following **
   * SOC 102 — Social Institutions .................................................. 3
   * SOC 201 — Social Problems ...................................................... 3
   * SOC 242 — The Family: A cross-cultural Perspective ......................... 3
   * SOC 307 — Demography ........................................................... 3
   * SOC 309 — Urban Sociology ...................................................... 3
   * SOC 310 — Sociology of Later Life ............................................ 3
   * SOC 335 — Sociology of Deviant Behavior ................................... 3
   * SOC 370 — Drugs and Drug Dependence ..................................... 3
   * SOC 402 — Social Change ....................................................... 3
   * SOC 407 — Formal Organizations ............................................. 3
   * SOC 408 — American Minority Groups ....................................... 3
   * RD 325 — Community Org. & Devl. Strategies ............................... 3

Minimum Credits required for Degree: 120

*May be used toward B.A. general degree requirements where applicable.
**Courses from this group not used toward the major may be applied toward B.A. general degree requirements where applicable.

MINOR in Sociology:
A minor in Sociology requires 18 credits in sociology including Soc. 101 and 102.

Space Physics

College of Natural Sciences
Department of Physics

Degrees: M.S., Ph.D.
Minimum Requirements for Degrees: M.S. — 30 additional credits; Ph.D. — no fixed credits

For complete information on the graduate programs in space physics, see the UAF Graduate Catalog.

Speech Communication

College of Liberal Arts
Department of Speech Communication

Degree: B.A.
Minimum Requirements for Degree: 130 credits

Course work in Speech Communication prepares an individual to handle the challenges of communicating effectively in a rapidly changing world. The major and minor program in Speech Communication provide the student with a comprehensive background in the discipline in preparation for employment or further education. Individuals majoring in a wide variety of other disciplines will also find Speech Communication electives to be valuable additions to their programs.

Requirements

Speech Communication — B.A. Degree
1. Complete the general university degree requirements and B.A. degree requirements, including one of the two Fundamentals of Oral Communication courses required in the Core Curriculum. The course completed as part of the Core Curriculum may or may not be used to meet the requirements of the Speech Communication Major listed in section 2.
2. Complete a minimum of 30 credits in approved Speech Communication courses. The courses must be distributed as follows:
   100 level courses ................................................................. 3 credits
   200 level courses ................................................................. 6 credits
   300 level courses ................................................................. 12 credits
   400 level courses ................................................................. 9 credits

COURSES

100 Level
   SPC 141 — Fundamentals of Oral Communication-Public Context ......... 3

200 Level
   SPC 222 — Fundamentals of Interpersonal Communication ................. 3
   SPC 225 — Listening and Interviewing ....................................... 3
   SPC 231 — Business and Professional Communication ..................... 3
   SPC 251 — Argumentation and Debate ...................................... 3
   SPC 261 — Oral Interpretation ............................................... 3

300 Level*
   SPC 320 — Communication and Language ...................................... 3
   SPC 321 — Nonverbal Communication ........................................ 3
   SPC 330 — Intercultural Communication .................................... 3
   SPC 331 — Advanced Group Communication ................................ 3
   SPC 332 — Organization Communication .................................... 3
   SPC 342 — Advanced Public Speaking ....................................... 3
   SPC 351 — Communication and Women ....................................... 3
   SPC 352 — Family Communication ........................................... 3

400 Level*
   SPC 401 — Communication Research Methods ................................ 3
   SPC 422 — Interpersonal Communication .................................... 3
   SPC 425 — Communication Theory ........................................... 3
   SPC 441 — Persuasion ............................................................ 3
   SPC 443 — Rhetorical Theory .................................................. 3
   SPC 475 — Speech Communication in Education and Training ............. 3
   SPC 482 — Seminar in Speech Communication .............................. 3

3. Minimum credits required ....................................................... 130

*With approval of advisor, an appropriate level Speech Communication course not listed in this group may be used to meet 3 credits of this requirement.

MINOR in Speech Communication:
A minor in Speech Communication requires the completion of 15 credits in Speech Communication courses beyond the courses taken to satisfy the university oral communication requirement. At least 6 of the credits must be at the 300 level or higher. Up to 6 credits used to fulfill minor requirements may be used at the same time to fulfill major or general distribution requirements. A minor program requires the approval of the Speech Communication faculty in advance of declaring the minor, preferably no later than the first semester of the student's junior year.

Statistics

College of Liberal Arts
Department of Mathematical Sciences

Degree: B.S.
Minimum Requirements for Degree: 120 credits

Statistics is a collection of methods 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
Theater

College of Liberal Arts
Department of Theater

Degree: B.A.
Minimum Requirements for Degree: 130 credits

The program in Theater is structured to familiarize students with the theory and practice applicable to all aspects of theatrical production. With a variety of career options open to theater majors, the program's coupling of classroom study with a substantial schedule of productions is designed to prepare the student pursuing the major or minor for employment or further education. In addition, theater classes and productions are open to the participation of all students and provide unique opportunities for creative expression and development when coupled with other programs.

Students pursuing a major or minor in theater are encouraged to work closely with a theater faculty member in arranging their individual program of study, including appropriate courses in related disciplines.

Requirements

Theater — B.A. Degree
1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:
   1. Complete a minimum of 45 credits in theater and stipulated related courses as specified below, including the following foundation courses:

   **Credits**
   - THR 121 - Fundamentals of Acting (3)
   - THR 241 - Basic Stagecraft (3)
   - THR 331 - Fundamentals of Stage Direction (3)
   - THR 354 - Costume Construction and Design (3)
   - THR 411 - Theater History I or
   - THR 412 - Theater History II (3)
   - A minimum of two courses from:
     - ENGL 422 - Shakespeare: History Plays and Tragedies (3)
     - ENGL 425 - Shakespeare: Comedy and Non-Dramatic Poetry (3)
     - ENGL 445 - 20th Century Drama: Chekhov to Ionesco (3)
   - A minimum of one course from:
     - ART 261 - History of World Art
     - ART 262 - History of World Art
     - MUS 123 - Experiencing Music
     - MUS 124 - Music in World Cultures (3)
   - A minimum of one course from:
     - ART 105 or 106 - Beginning Drawing
     - JR 215 - Audio Production
     - JR 316 - Television Production
     - ES 101 - Graphics (2 cr.)
     - PER 100 - Modern Dance, Fencing, Gymnastics (1 cr. each)
     - SPC 261 - Oral Interpretation
     - SPC 211 - Voice and Diction
     - FL 110 - Pronunciation of French, German, Italian, and Spanish
   - A minimum of two courses from:
     - Additional course(s) from 1, 2, and 3 above
   - A second semester of Theater History.
   
   An individual study in theater...
7. Minimum credits required ........................................ 130

*May be used to meet B.A. general degree requirements where applicable.

MINOR in Theater:
A minor in Theater requires 18 credits in theater courses including the following:

THR 121 - Fundamentals of Acting ......................................... 3
THR 211 - Theater Appreciation .............................................. 3
THR 241 - Basic Stagecraft ..................................................... 3

No more than 3 credits in theater practicum may be applied to the minor. The minor program requires the approval of a member of the theater faculty in advance of formally declaring the minor, preferably no later than the first semester of the junior year.

Production Participation Requirement

Majors and minors in theater are expected to participate actively, extensively and continuously in the production activities of the program throughout their enrollment as majors or minors in the university. Typically, this means that a major is expected to work on some aspect of every major production and a minor on approximately half the major productions. Failure to meet the department's expectations with respect to such participation will be considered in approving students for graduation. A student whose failure to fulfill this expectation is, in the view of the theater faculty, jeopardizing his/her future graduation approval and will be notified of this situation, and for this purpose each student's progress in the program will be reviewed annually toward the end of each academic year. Theater majors may take theater practicum for elective credit, but it will not be counted in the credit total for the major.

Veterinary Medicine

Pre-Professional Program

Veterinary medicine is concerned with two primary health areas. The first is animal health which involves diagnosis, prognosis, therapy and prevention of animal health problems. The second is public health which involves protection of the public from animal borne disease, with methods such as food safety inspection. Veterinarians can also be found in the fields of research and education.

Generally, four-years of graduate level study are required for completion of a professional program in veterinary medicine. Classroom instruction and laboratory work provide the student with a solid foundation during the first three years of study. The final year of professional study is comprised of clinical rotations. Specialization within veterinary medicine is possible after further study at the post-doctoral level.

While a bachelor's degree is not required for admission into veterinary school, most entering students have completed a four-year undergraduate degree. Veterinary schools will consider applications from students in all disciplines provided specific course requirements have been met. Since these course requirements may vary somewhat with each school, it is recommended that students check the requirements of the school they are interested in. In general, pre-veterinary students should include the following courses in their studies at UAF: inorganic chemistry (CHEM 105X, 106X), organic chemistry (CHEM 321, 322, 324), biochemistry (CHEM 431, 432), biology (BIOL 105X, 106X, 342, 362, 418), mathematics (STAT 301), and physics (PHYS 103X, 104X).

Admission to veterinary school is based on the strength of one's undergraduate academic record, plus test scores on either the Veterinary College Admissions Test (VCAT) or the Graduate Record Exam (GRE). In addition, veterinary medicine exposure and experience is highly recommended.

Advisement for students considering veterinary medicine as a career choice is available through the Academic Advising Center.

Welding

School of Career and Continuing Education
Department of Trade and Industry

(907) 474-5264

Special training programs
Welding is an important industrial skill with applications in agriculture, transportation, aviation, oil and gas, and construction. Training ranges from welding basics to advanced pipe and metal plate fabrication. Classes are kept small in order to offer hands-on training and maximum student-instructor interaction. Advanced students may work toward A.W.S. certification or pursue advanced projects. A student may request credit by examination for any WMT class. See the department for details.

Wildlife Management

College of Natural Sciences
Department of Biology and Wildlife

(907) 474-7671

Degrees: B.S., M.S.

Minimum Requirements for Degrees: B.S., 130 credits; M.S., 30 additional credits

The undergraduate curricula in the program in wildlife are intended to provide basic education and training. Two options are available: a wildlife research biologist option and a wildlife management biologist option. The research biologist option is designed for those students whose objective is to undertake field and laboratory research needed to provide additional information on the workings of wild animal populations, the condition of their habitat, and habitat-animal relationships. The management biologist option is designed for those students whose primary interests involve the interpretation, application, or dissemination of research findings, rather than their acquisition. That option is appropriate for those students contemplating careers in wildlife agency administration, in developing and implementing wildlife management plans and in public information and education. The curricula in both options provide a solid foundation for graduate study.

The geographic location of the university is particularly advantageous for the study of wildlife management. 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 Southwestern Alaska to the arctic coast.

Adequate study collections of plants and animals are available, and a 2,000-acre study area is near the campus. Undergraduates have ample opportunity for close association with the personnel of the Alaska Cooperative Wildlife Research Unit, the Alaska Cooperative Fishery Research Unit and several federal offices of the federal and state conservation agencies. These agencies usually hire a number of students for summer field work. Thus, an unusually good opportunity is available for students to gain experience and to make job connections.

Requirements
Wildlife Management — B.S. Degree
[Research Biologist Option]
1. Complete the general university requirements and B.S. degree requirements, completing SPC 141X as part of the core.
2. Complete the following program (major) requirements:

Courses Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM 101</td>
<td>Natural Resources Cons. and Policy</td>
<td>3</td>
</tr>
<tr>
<td>NRM 300</td>
<td>Soils</td>
<td>3</td>
</tr>
<tr>
<td>NRM 400</td>
<td>Natural Resources Prot.</td>
<td>3</td>
</tr>
<tr>
<td>WLF 120</td>
<td>Wildlife Policy and Admin.</td>
<td>3</td>
</tr>
<tr>
<td>STAT 300</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 402</td>
<td>Scientific Sampling</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 105X</td>
<td>Fundamentals of Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>Vertebrate Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 317</td>
<td>Comp. Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 210</td>
<td>Animal Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 220</td>
<td>Introduction to Plant Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 271</td>
<td>Principles of Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 331</td>
<td>Systematic Botany</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 362</td>
<td>Principles of Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 425</td>
<td>Mammalology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 426</td>
<td>Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 471</td>
<td>Population Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>
CHEM 105X-106X — General Chemistry ............................................. 8
ENGL 314 — Technical Writing .......................................................... 4
or ENGL 414 — Research Writing ......................................................... 3
MATH 272-273 — Introduction to Calculus for the Life Sciences .... 6
PHYS 103X — College Physics ............................................................ 4
WLF 101 — Survey of Wildlife Sciences ............................................. 3
WLF 201 — Wildlife Management Principles .................................... 3
WLF 303 — Wildlife Management Techniques .................................... 3
WLF 360 — Nutrition and Physiol Ecology of Wildlife ..................... 3
WLF 410 — Wildlife Populations and Their Management .................... 3
BIOL 473 — Limnology ................................................................. 3
CS 103 — Intro to Computer Programming ...................................... 3

Take at least 2 of the following:
WLF 305 — Concepts of Animal/Wildlife Diseases ............................ 3
WLF 417 — Wildlife Management: Forest and Tundra ...................... 2
WLF 419 — Waterfowl and Wetlands Ecology and Management .......... 4
BIOL 472 — Communities and Ecosystems ..................................... 2

Complete sufficient electives to bring total to 130 credits.
Bachelor of science 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.

*Note prerequisite.

Wildlife Management — B.S. Degree
(Management Biologist Option)

1. Complete the general university requirements and B.S. degree requirements, completing SPC 141X as part of the core.
2. Complete the following program (major) requirements:

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM 301</td>
<td>Natural Resources Cons. and Policy</td>
<td>3</td>
</tr>
<tr>
<td>NRM 380</td>
<td>Soils</td>
<td>3</td>
</tr>
<tr>
<td>NRM 400</td>
<td>Natural Resource Policies</td>
<td>3</td>
</tr>
<tr>
<td>WLF 420</td>
<td>Wildlife Policy and Administration</td>
<td>3</td>
</tr>
<tr>
<td>NRM 430</td>
<td>Land-Use Planning</td>
<td>3</td>
</tr>
<tr>
<td>STAT 300</td>
<td>Elementary Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 401</td>
<td>Scientific Sampling</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 105X-106X</td>
<td>Fundamentals of Biology</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>Vertebrate Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>*BIOL 210</td>
<td>Animal Physiology</td>
<td>4</td>
</tr>
<tr>
<td>*BIOL 239</td>
<td>Introduction to Plant Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 271</td>
<td>Principles of Ecology</td>
<td>4</td>
</tr>
<tr>
<td>*BIOL 341</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 425</td>
<td>Mammalogy</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 426</td>
<td>Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 471</td>
<td>Population Ecology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 105X-106X</td>
<td>General Chemistry</td>
<td>6</td>
</tr>
<tr>
<td>ECON 235</td>
<td>Introduction to Natural Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 314</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 414</td>
<td>Research Writing</td>
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</tr>
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<td>Introduction to Calculus for the Life Sciences</td>
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</tr>
<tr>
<td>PHYS 103X</td>
<td>College Physics</td>
<td>4</td>
</tr>
<tr>
<td>WLF 101</td>
<td>Survey of Wildlife Sciences</td>
<td>3</td>
</tr>
<tr>
<td>WLF 201</td>
<td>Wildlife Management Principles</td>
<td>3</td>
</tr>
<tr>
<td>WLF 410</td>
<td>Wildlife Populations and Their Management</td>
<td>3</td>
</tr>
<tr>
<td>WLF 303</td>
<td>Wildlife Management Techniques</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 473</td>
<td>Limnology</td>
<td>3</td>
</tr>
</tbody>
</table>

In addition:
1. At least 9 credits must be completed from this group:
   GEOG 302 — Geography of Alaska .............................................. 3
   GEOG 402 — Man and Nature ..................................................... 3
   **JB 102 — Broadcasting and Society ....................................... 3
   **JB 303 — Basic Newsgathering and Processing .......................... 3
   **JB 203 — Basic Photography .................................................. 3
   JB 311 — Magazine Article Writing ......................................... 3

*Note prerequisite.
**Maximum of 3 credits may be included in the required 9.

PHIL 322 — Ethics ................................................................. 3
PS 101 — Introduction to American Government ................................ 3
PS 201 — Comp. Politics: Methods of Political Analysis .................. 3
PS 263 — Alaska Native Politics ................................................. 3
PS 301 — Public Admin. in Political Process .................................. 3
PSY 101 — Introduction to Psychology ....................................... 3
SOC 101 — Introduction to Sociology ......................................... 3
SOC 102 — Introduction to Sociology ......................................... 3
SOC 309 — Urban Sociology ...................................................... 3

2. At least 1 of the following courses must be included:
   NRM 460 — Principles Outdoor Recreation Management .................. 3
   NRM 450 — Forest Management .................................................. 3
   NRM 370 — Introduction to Watershed Science ............................. 3

3. At least 2 of the following courses must be included:
   WLF 417 — Wildlife Management: Forest and Tundra ...................... 2
   WLF 419 — Waterfowl and Wetlands Ecology and Management .......... 4
   FISH 428 — Introduction to Fisheries Science ............................. 3
   FISHER 450 — Fisheries Management ....................................... 3
   WLF 430 — Introduction to Aquaculture .................................... 3
   WLF 305 — Concepts of Animal/Wildlife Disease .......................... 3
   BIOL 472 — Communities and Ecosystems .................................. 3

4. Complete sufficient electives to bring total credits to 130.
Bachelor of science 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.

The wildlife and fisheries program and the Alaska Cooperative Wildlife Research Unit cooperate in offering graduate work leading to the master of science degree. An interdisciplinary doctor of philosophy degree can also be offered. Persons desiring detailed information on the graduate program in wildlife management may obtain this from the head, wildlife and fisheries program. The procedure to be followed in applying for admission to graduate study is outlined in the section on Graduate Admissions in this catalog.

The Alaska Cooperative Wildlife Research Unit offers a limited number of research assistantships; information on these and the unit's program can be obtained from the head, Alaska Cooperative Wildlife Research Unit, University of Alaska Fairbanks, Fairbanks, Alaska. Applications for these assistantships should be sent to the unit's head; such applications are supplemental to the application for admission for graduate study.

Wildlife Management — M.S. Degree

For complete information on the graduate programs in wildlife management, see the UAF Graduate Catalog.

Zoology

College of Natural Sciences
Department of Biology and Wildlife

Degrees: M.S.
Minimum Requirements for Degrees: M.S. — 30 additional credits

For complete information on the graduate programs in zoology, see the UAF Graduate Catalog.
In this section of the University of Alaska Fairbanks catalog full course information for all undergraduate level courses is included. Titles, credits and frequency of offering only are indicated for graduate level courses. (See the UAF Graduate Catalog for complete graduate course information.) Unless otherwise indicated, course frequency refers to the offering of courses at the Fairbanks campus of the University of Alaska Fairbanks. The courses listed in this catalog are not offered at all UAF sites but could be offered if demand warrants and qualified faculty are available.

Courses are regularly offered at the Aleutians Campus at Unalaska, Bristol Bay Campus at Dillingham, Chukchi Campus at Kotzebue, Kuskokwim Campus at Bethel and Northwest Campus at Nome. In the Interior Campus, courses are available at Fort Yukon, Galena, McGrath, Nenana and Tok. Courses are offered at Delta Junction through the UAF School of Career and Continuing Education. Information about the frequency of offerings of courses at these 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 the course is normally offered in its own department. For example, ENGL 111 is given for first-year students and ENGL 318 is given for third-year students. Freshman and sophomore students are cautioned to register for upper division (300 and 400) level courses only if they have had adequate preparation and background to undertake advanced study in the field in which those courses are offered.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>000-049</td>
<td>Non-credit courses</td>
</tr>
<tr>
<td>050-099</td>
<td>Developmental courses</td>
</tr>
<tr>
<td>100-299</td>
<td>Lower-division courses</td>
</tr>
<tr>
<td>300-499</td>
<td>Upper-division courses</td>
</tr>
<tr>
<td>500-599</td>
<td>Post-baccalaureate courses</td>
</tr>
<tr>
<td>600-699</td>
<td>Graduate courses</td>
</tr>
</tbody>
</table>

Special or Reserved Numbers — Courses identified with numbers ending in -92 are seminars; ending in -93 are special topics courses, approved to be offered only during one academic year; -94, approved trial courses; -95, special topics summer session courses, offered only during the summer; -97 indicates individual study; -98, individual research; -99, thesis.

Courses identified with these special or reserved numbers may be available at all levels (i.e., 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 Vice Chancellor for Academic Affairs (e.g., 600-level offerings in areas without approved graduate programs). These courses may be repeated for credit.

Courses with a suffix of “X” (ENGL 111X, MATH 131X) meet specific baccalaureate core requirements. Courses with suffixes of “w” or “o” meet upper-division writing intensive or oral communication intensive core requirements for the baccalaureate core.

### Course Credits

One credit represents satisfactory completion of 840 minutes of lecture or 1680 or 2520 minutes of laboratory, whichever is appropriate. Credit hours may not be divided, except one-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.

Following the title of each course, the figures in parentheses indicate the number of hours of lecture and laboratory; the class meets each week for one semester. The first, lecture hours; the second, laboratory. For example (2+3) indicates that a class has two hours of lecture and three of laboratory work week.

The number of credits listed is for each semester. Thus "3 credits" means three credits may be earned.

A credit may not be given more than once for the completion of a course unless the course has been designated as repeatable for credit.

### Course Classification Identification

Courses that may be used in satisfying general degree requirements (e.g., Social Science Elective, Humanities Elective, etc.) are identified in the course description section of this catalog with the following designators:

- h — Humanities
- s — Social Science
- m — Mathematics
- n — Natural Science
- w — Writing Intensive
- o — Oral Communication Intensive

For example, HIST 341, History of Alaska (3+0) may be utilized to satisfy the "social science elective" requirement.

Special topics courses are not given course classifications.

### The Baccalaureate Core

Courses that may be used to satisfy general baccalaureate core requirements have course numbers ending with "X". For example, English 111X, Speech Communication 141X, and other such courses meet specific core requirements. See the baccalaureate core requirements for a listing of other specific courses.

Courses meeting the upper division writing intensive and oral communication intensive requirements for the baccalaureate core are identified in the course description section of the catalog with the following designators:

- o — Oral Communication Intensive Course
- w — Writing Intensive Course

Note: Courses designated as meeting "w" or "o" requirements for the baccalaureate core may not meet written or oral communication requirements for degree requirements in effect prior to the fall of 1991.
Note: Courses which are offered only every other year are indicated by the specific year in which they are next scheduled. Courses with no year scheduled are offered every year, except as noted.

Note: All courses are not offered at all locations of the University of Alaska Fairbanks. Check the local class schedule for course offerings at other sites.

Erika Van Flein does her accounting homework by preparing her worksheet for tomorrow's class.
Accounting

Admittance to upper division School of Management courses will be granted only to students with junior standing or above. Others will be admitted only with the written permission of the appropriate department head.

ACCT 101 3 Credits Fall, Spring
Elementary Accounting (3+0)
Accounting concepts and procedures for service businesses and for merchandising businesses owned by a single proprietor. Also available via Independent Learning.

ACCT 102 3 Credits Fall, Spring
Elementary Accounting (3+0)
Accounting concepts and procedures for businesses organized as partnerships or corporations and performing manufacturing operations. Also available via Independent Learning. (Prerequisite: ACCT 101.)

ACCT 303 3 Credits Fall, Spring
Governmental Accounting (3+0)
Fund accounting: financial reporting; budgetary control for governmental, municipal and non-profit organizations. (Prerequisite: ACCT 101.)

ACCT 310 3 Credits Fall
Income Tax (3+0)
Federal and state income taxes primarily for Alaska residents. Introduction to corporate income taxation. Tax reporting, planning, and research. (Prerequisite: ACCT 102 or permission of instructor.)

ACCT 323 3 Credits As Demand Warrants
Petroleum Accounting (3+0)
Financial reporting and accounting for the petroleum industry. Emphasis on exploration, development and production phases of oil and gas operations. (Prerequisites: ACCT 101 and 102 or permission of instructor.)

ACCT 342 3 Credits Spring
Managerial Cost Accounting (3+0)
Cost accounting with managerial emphasis on cost-volume-profit analysis, job order and process costing, joint costs, by-products, inventory costing alternatives, systems design, responsibility accounting, profit planning, standard costs, and flexible budgeting. For accounting majors. (Prerequisite: ACCT 102.)

ACCT 352 3 Credits Fall, Spring
Management Accounting (3+0)
Business policy, profit planning, resource planning, control concepts, reporting for management control, and impact of public reporting on management decisions. (Prerequisites: ACCT 101, ACCT 102.)

ACCT 361 3 Credits Fall
ACCT 362 3 Credits Spring
Intermediate Accounting (3+0)
Balance sheet accounts and procedures for analysis and correction. Working capital and fixed assets emphasized fall semester. Long-term liabilities and stockholders’ equity emphasized spring semester. (Prerequisite: ACCT 102.)

ACCT 401W 3 Credits Fall
Advanced and International Accounting (3+0)
Accounting for parent-subsidiary relationships, partnerships, and fiduciaries. International accounting in multi-national enterprises emphasized. (Prerequisite: ACCT 362.)

ACCT 403 3 Credits Spring
Advanced Taxes (3+0)
Federal income tax for all entities. Gift, estate, and payroll taxes. Tax research, planning, and reporting for domestic and foreign taxpayers. (Prerequisite: ACCT 310.)

ACCT 404 3 Credits Fall
Advanced Cost Accounting and Controllship (3+0)
Controllship function in contemporary organizations and related reporting requirements. Managerial considerations related to contemporary organizations. (Prerequisites: AIS 316, ACCT 342, 362; BA 325, 330.)

ACCT 405 3 Credits Spring
Contemporary Issues in Accounting (3+0)
Current developments in financial and managerial accounting theory and research. Relevant court cases, SEC rulings, FASB and AICPA publications. Academic accounting research. (Prerequisite: ACCT 401.)

ACCT 452 3 Credits Fall
Auditing (3+0)
Procedures for verification of financial data. Professional standards applicable to the auditor’s examination and opinion of financial statements. (Prerequisite: ACCT 362.)

ACCT 471 3 Credits As Demand Warrants
Tax Planning and Research (3+0)
Tax planning and research for business organizations. Tax planning for estates, trusts, and individuals. For tax practitioners and students without work experience in taxation. (Prerequisites: ACCT 310 and 403 or permission of instructor.)

ACCT 472 3 Credits Spring
Computer Control and Advanced Auditing (3+0)
Advanced auditing theory and practice. Audit techniques and internal control of computer systems. For auditor practitioners and students without field experience in auditing. Materials fee: $20.00. (Prerequisites: AIS 316, ACCT 452. Course assumes prior exposure to auditing and information systems.)

ACCT 473 3 Credits Fall
Applied Systems Design (3+0)
Development and implementation of a computer-based accounting information system for a small business or not-for-profit entity. Materials fee: $20.00. (Prerequisites: AIS 316, ACCT 342 or 352.)

ACCT 481 1 Credit As Demand Warrants
Personal Tax Planning (1+0)
Provisions of tax law affecting the individual taxpayer. Not a tax preparation course. (Prerequisites: Upper division standing, permission of instructor.)

ACCT 482 1 Credit As Demand Warrants
Business Tax Planning (1+0)
Applicable tax credits, business deductions, profit sharing plans, and various state taxes. Not a tax preparation course. (Prerequisite: Upper division standing or permission of instructor.)

ACCT 483 1 Credit As Demand Warrants
Estate Tax Planning (1+0)
Gift, estate, and social security taxes. (Prerequisite: Upper division standing or permission of instructor.)

ACCT 602 3 Credits Spring
Financial Accounting Concepts for Administrators (3+0)

ACCT 650 3 Credits Spring
Management Accounting Seminar (3+0)

Accounting and Information Systems

AIS 101 3 Credits Fall, Spring
Computer Literacy (3+0)
Concepts, skills and software required for today’s business education; study of selected current business software applications. Materials fee: $20.00. (Prerequisite: Placement in MATH 107/161 or completion of MATH 161.)

AIS 201 3 Credits Alternate Spring
COBOL (2+2)
Training and practice in writing programs in the COBOL language. Multiple file processing, editing and report generating routines. Materials fee: $20.00. (Prerequisite: AIS 101 or permission of instructor. Next offered: 1991-92.)

AIS 310 3 Credits Fall, Spring
Introduction to Management Information Systems (3+0)
The role of information technology in organizations and its impact on management and strategic issues. Materials fee: $20.00. (Prerequisite: AIS 101.)

AIS 312 3 Credits Spring
Information Systems Technology (3+0)
Introduction to the hardware and systems software underlying information systems; provides background to understand computer marketing literature and to select among technology alternatives. Materials fee: $20.00

AIS 316 3 Credits Spring
Accounting Information Systems (3+0)
Accounting systems for business entities in various industries. Internal control for the business, data processing and its relationship to accounting systems. Materials fee: $20.00. (Prerequisites: ACCT 101 and 102.)
Airframe and Powerplant

AFPM 111 3 Credits As Demand Warrants
General Airframe and Powerplant (4+0)
Shop practices, basic math, applied physics, F.A.A. regulations, basic electricity, aircraft weight and balance, ground operations and servicing, clearance and coordination control, and materials and process. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: AIS 410 or concurrent enrollment in AIS 414 or CS 425.)

AFPM 145 1 Credit As Demand Warrants
Basic Mathematics (1+0)
Review of applied and technical mathematics related to the construction of aircraft and their engines. Common and decimal, fractions and mixed numbers, extracting square roots and raising numbers to a given power, solving ratios, proportions and percentage problems, fundamental algebraic operations. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 146 2 Credits As Demand Warrants
Basic Electricity (2+0)
Electrical theory and concepts for the aviation mechanic. Ohm’s law, electrical circuits, diagrams, batteries, and a variety of electrical components. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 147 0.5 Credits As Demand Warrants
Physics for Mechanics (0.5+0)
Applied mechanics for aviation: levers, sound, fluid, and heat dynamics. Basic aircraft structures and aerodynamics. (Course does not fulfill Natural Science requirements for any degree.) (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 148 1 Credit As Demand Warrants
Aircraft Drawing (1+0)
Basic drafting, drawings, symbols and schematic diagrams, sketches of repairs and alterations, blueprint information, graphs and charts. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 149 0.5 Credits As Demand Warrants
Fluid Lines and Fittings (0.5+0)
Rigid and flexible fluid lines and fittings, fabrication and installation. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 150 2 Credits As Demand Warrants
Materials and Processes (2+0)
Basic shop practices, including selection, identification and installation of tools, materials, precision measuring tools and operations, basic heat treating processes, forms of non-destructive inspections. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 151 1 Credit As Demand Warrants
Cleaning and Corrosion Control (1+0)
Basic aircraft cleaning materials, methods, and corrosion control. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 152 1 Credit As Demand Warrants
Federal Aviation Regulations (1+0)
Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics. (Prerequisite: Admission to A & P program or permission of instructor.)

AFPM 153 1 Credit As Demand Warrants
Weight and Balance (1+0)
Weighting procedures, weight, arms, moments, center of gravity computations, and placarding. Aircraft loading, required forms, weighing. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 154 0.5 Credits As Demand Warrants
Ground Operations and Servicing (0.5+0)
Starting, moving, servicing, securing, and refueling aircraft. (Prerequisite: Admission to A & P program or permission of instructor.)

AFPM 205 3 Credits As Demand Warrants
Airframe Structures (FAA Test Preparation) (3+0)
Aircraft wood, dope, fabric finishes, welding, sheet metal, assembly and rigging and inspection. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

AFPM 206 2 Credits As Demand Warrants
Airframe System & Components (FAA Test Preparation) (2+0)
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. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

AFPM 215 2 Credits As Demand Warrants
MOS Powerplant Theory/Maintenance (FAA Test Preparation) (2+0)
Jet engine fundamentals, analysis, testing, inspecting turbo jet, turbo shaft, and turbo fan engines. Overhaul, inspection, and fundamentals of reciprocating engines. Preparation for the FAA Mechanics Powerplant Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

AFPM 216 3 Credits As Demand Warrants
MOS Powerplant System/Components (3+0)
Fuel metering, induction systems, propellers, control systems, and powerplant electricity. Repair, inspection, service and troubleshooting. Preparation for the FAA Mechanics Powerplant Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

AFPM 230 2.5 Credits As Demand Warrants
Aircraft Electrical Systems (2.5+0)
Wiring, control, instrumentation, and protective devices for AC and DC systems. Inspection, troubleshooting, service and repair of these systems. Materials fee: $15.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 231 1.5 Credits As Demand Warrants
Powerplant Electrical Systems (1.5+0)
Installation, inspection, testing, servicing. Engine electrical system wiring, controls, indicator and protective devices. Repair and service of electrical generating systems. Materials fee: $15.00.

AFPM 235 5 Credits As Demand Warrants
Aircraft Reciprocating Engines (5+0)
History and development of the aircraft reciprocating engine. Repair, overhaul, and inspection of various types of engines. Operation and troubleshooting of engines. Materials fee: $120.00.

AFPM 240 1.5 Credits As Demand Warrants
Turbine Engines (1.5+0)

AFPM 244 1.5 Credits As Demand Warrants
Lubricating Systems (1.5+0)
Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and components. Materials fee: $5.00. (Prerequisite: Admission to A & P program or permission of instructor.)

AFPM 245 2.5 Credits As Demand Warrants
Ignition Systems (2.5+0)
Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems. Repair and bench testing of components. Materials fee: $15.00. (Prerequisite: Admission to A & P program or permission of instructor.)
AFPM 246 1.5 Credits As Demand Warrants
Fuel Metering Systems (1.5+0)
Fundamental operation of systems in aircraft powerplants. Technical data to repair and overhaul carburetors and components. Inspection and service of water injection systems. Materials fee: $10.00. (Prerequisite: Admission to the A & P Program or permission of the instructor.)

AFPM 248 0.5 Credits As Demand Warrants
Induction Systems (1.5+0)
Operation and service of aircraft induction, preheat, anti-ice and supercharger systems.

AFPM 249 0.5 Credits As Demand Warrants
Powerplant Cooling Systems (1.5+0)
Inspection, service and repair of engine cooling systems - both air and liquid cooled installations. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 250 0.5 Credits As Demand Warrants
Powerplant Exhaust Systems (1.5+0)
Inspection, service and repair of engine exhaust systems. Includes operation of turbo compounded engines, thrust reversers, and noise suppressors. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 251 1.5 Credits As Demand Warrants
Fuel Systems (1.5+0)
Inspection, servicing, troubleshooting and repair of aircraft and engine fuel systems and components. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 252 2 Credits As Demand Warrants
Propellers (2+0)
Identification and nomenclature of aircraft propellers. Operation, control and repair of both reciprocating and turbine engine installations. Materials fee: $5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 253 0.5 Credits As Demand Warrants
Position and Warning Systems (1.5+0)
Aircraft speed and takeoff warning and anti-skid braking systems. Inspection, troubleshooting, service and repair. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 254 0.5 Credits As Demand Warrants
Ice and Rain Control Systems (1.5+0)
Inspection, operation and troubleshooting of de-ice and anti-ice systems.

AFPM 255 0.5 Credits As Demand Warrants
Fire Protection Systems (1.5+0)
Inspection, servicing, troubleshooting and repair of aircraft and engine fire detection and extinguishing systems. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 256 0.5 Credits As Demand Warrants
Communications & Navigation Systems (1.5+0)
Operation of aircraft avionics, autopilots and antennas, including inspection and installation.

AFPM 257 0.5 Credits As Demand Warrants
Instrument Systems (1.5+0)
Inspection, troubleshooting, removal and replacement of aircraft and engine instruments and indicating systems. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 258 1 Credit As Demand Warrants
Cabin Atmosphere Control Systems (1+0)
Aircraft pressurization, air conditioning, heating and oxygen systems. Operation, inspection, troubleshooting, service and repair.

AFPM 259 1.5 Credits As Demand Warrants
Hydraulic and Pneumatic Systems (1.5+0)
Operation of systems and uses in aircraft. Identification of hydraulic fluids, seals, hydraulic and pneumatic control devices, inspection and servicing, and troubleshooting.

AFPM 260 2 Credits As Demand Warrants
Aircraft Landing Gear Systems (2+0)
Simple and complex systems. Operation, service and repair of mechanical and hydraulic retraction mechanisms. Wheel, tire and brake service. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 261 0.5 Credits As Demand Warrants
Wood Structures (1+0)
Inspection, service and repair. Woods, glues, patching and splicing. Materials fee: $5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 262 1 Credit As Demand Warrants
Aircraft Coverings (1+0)
Selection, application, inspection and testing of fabric and fiberglass coverings and methods of repair. Materials fee: $25.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 263 0.5 Credits As Demand Warrants
Aircraft Finishes (1+0)
Identification and selection of aircraft finishing materials. Application of paints, dyes, primers, and trim. Materials fee: $30.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 264 3.5 Credits As Demand Warrants
Sheet Metal Structures
Aircraft sheet metal fabrication, inspection and repair including rivets and fasteners, repair of interiors and service of plastic, honeycomb and bonded structure. Materials fee: $85.00.

AFPM 265 1.5 Credits As Demand Warrants
Aircraft Welding
Cathode ray and ultrasonic methods on aircraft structures. Oxyacetylene, argon inerts and brazing techniques. Inspection and welding of aircraft beams and safety procedures. Materials fee: $10.00-100.00.

AFPM 266 1.5 Credits As Demand Warrants
Assembly and Rigging
Aerodynamic theory and function of aircraft control surfaces. Fabrication and installation of control devices for fixed and rotary wing aircraft; landing and control surface balance. Materials fee: $15.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 267 0.5 Credits As Demand Warrants
Airframe Inspections
Inspection and return of aircraft to service. Procedural and legal aspects of 100 hour, annual and periodic inspections. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 270 0.5 Credits As Demand Warrants
Airframe Testing
Preparation for the Federal Aviation Administration written, oral and practical exams for the Powerplant Mechanics license. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 271 0.5 Credits As Demand Warrants
Powerplant Inspections
Preparation for the FAA Powerplant Mechanics written, oral and practical exams for the Powerplant Mechanics license. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 272 0.5 Credits As Demand Warrants
Powerplant Testing
Preparation for the Federal Aviation Administration written, oral and practical exams for the Powerplant Mechanics license. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 273 2 Credits As Demand Warrants
Inspection Authorization Preparation (1+2)
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 for inspection and return to service aircraft, engines, propellers, appliances and related parts in accordance with FAR Pt 65.35. Final exam is the FAA Inspection Authorization exam administered by an FAA Airworthiness Inspector. (Prerequisite: FAA A & P Certificate, meet additional requirements of FAR 65.91.)

Alaska Native Languages

ANL 108 1.5 Credits
Beginning Athabaskan Literacy (1+0) h
Introduction to reading and writing in one of the Athabaskan languages for native speakers.

ANL 141 3 Credits
Beginning Athabaskan - Koyukon or Kutchin (1+0) h
Introduction to Koyukon, the Athabaskan language of the Koyukuk and Central Yukon rivers, or Kutchin, the Athabaskan language of the Upper Yukon. Class will deal with one of these two languages. Literacy and grammatical analysis for speakers. For non-speakers, a framework for learning to speak, read, and write the language. (Prerequisite: ANL 141 for ANL 142 in the same language or permission of the instructor.)
### Alaska Native Studies

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<tr>
<th>Course Code</th>
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<th>Description</th>
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</table>
| ANL 150     | 1 Credit| As Demand Warrants | Interpretive Communication (1+0) s 
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 socio-cultural backgrounds. |
| ANL 151     | 3 Credits| As Demand Warrants | Inter-Ethnic Communications (3+0) s 
Understanding differences in cross-cultural interaction. Application of cross-cultural interactions to various communication settings. Concentrations on Yup’ik ways of communication. |
| ANL 208     | 1-3 Credits| As Demand Warrants | Advanced Athabaskan Literacy (3+0) h 
Expository and creative writing for native speakers; reading Athabaskan literature; elicitation, transcription, and editing of cultural materials from elders. |
| ANL 215     | 3 Credits| Fall | Alaska Native Languages: Eskimo-Aleut (3+0) h 
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. |
| ANL 216     | 3 Credits| Spring | Alaska Native Languages: Indian Languages (3+0) h 
A survey of all Native languages of Alaska; particularly the Indian languages: Athabaskan-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. |
| ANL 241     | 3 Credits| Fall | Intermediate Athabaskan — Koyukon or Kutchin (3+0) h 
Continuation of beginning Athabaskan — Koyukon or Kutchin. One of these two languages will be taught. Development of conversational ability, additional grammar and vocabulary. (Prerequisites: ANL 141 and 142 in the same language, or permission of instructor.) |
| ANL 242     | 3 Credits| Spring | Intermediate Athabaskan — Koyukon or Kutchin (3+0) h 
Continuation of beginning Athabaskan — Koyukon or Kutchin. One of these two languages will be taught. Development of conversational ability, additional grammar and vocabulary. (Prerequisites: ANL 141 and 142 in the same language, or permission of instructor.) |
| ANL 387     | 3 Credits| As Demand Warrants | Bilingual Methods and Materials (3+0) h 
Training and research in bilingual education methods in Alaska Native languages and preparation of books and materials in any of them. |
| ANL 388     | 3 Credits| As Demand Warrants | Bilingual Methods and Materials (3+0) h 
Training and research in bilingual education methods in Alaska Native languages and preparation of books and materials in any of them. |

### Alaska Native Politics

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<tr>
<th>Course Code</th>
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</table>
| AKNP 131    | 1 Credit| As Demand Warrants | Introduction to the Alaska Native Claims Settlement Act (1+0) 
Basis of concern over the relation of Alaska Natives to their land, the land claim movement, and various issues; organizations involved. Current corporation structure — regional and village; current and future problems facing these groups, and strategies to resolve them. |
| AKNP 151    | 3 Credits| As Demand Warrants | Alaska Native Claims Settlement Act (3+0) 
| AKNP 212    | 1 Credit| As Demand Warrants | Duties and Powers of Local Government (1+0) 
Development and improvement of local government in Alaska. Future of local government in bush Alaska. For citizen, practitioner, and advocate. |
| AKNP 230    | 3 Credits| As Demand Warrants | Federal Indian Law (3+0) 
Principles of Federal Indian Law and the extent to which these principles apply to Alaska Natives. Foundation of principles that formed the bases of the relationship of the United States to the tribes and development of this relationship. Legal perspective and land issues. (Prerequisite: English placement test.) |
| AKNP 232    | 3 Credits| As Demand Warrants | 1991 and Beyond - Implications of ANCSA (3+0) 
Specific provisions of the Alaska Native Claims Settlement Act as related to 1991. Acquisitions, takeovers of corporations, provisions in Sections 7(h), 7(f), 7(h), and 14(c), changes allowed under ANILCA and other amendments to the Act, and the effect of ANCSA on the Indian Reorganization Act and the Indian Self-Determination Act, and land and stock status in the future. (Prerequisite: English Placement test.) |

### Alaska Native Studies

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<tr>
<th>Course Code</th>
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</table>
| ANS 101     | 3 Credits| Fall | Introduction to Alaska Native Studies (3+0) 
Introductory information on the Alaska Native Community. Overview of significant Native issues. Review of pertinent literature and resources. |
| ANS 103     | 1 Credit| As Demand Warrants | Beginning Eskimo Dance (1+2) 
Teaching of traditional and contemporary Yup’ik Eskimo dance through the means of singing, drumming, and motions of the stage. Interpretation and expression of Yup’ik and its relation to contemporary and traditional cultural lifestyles. |
| ANS 110     | 1 Credit| Fall | Parliamentary Procedures (1+0) 
(Same as PS 110) 
Rules and principles of parliamentary procedure and application to group decision-making processes. |
| ANS 120     | 3 Credits| Fall | Cultural Differences in Institutional Settings (3+0) 
The phenomena of culturally-organized thought processes. Communication patterns resulting from the interaction of peoples from different linguistic/culture traditions in modern institutional settings. Special attention to Alaskan Native and non-Native communication patterns. |
| ANS 160     | 1 Credit| Fall | Alaska Native Dance (2+0) 
Traditional Native Alaska dancing, singing, and drumming of songs from Alaska’s major indigenous groups taught by guest Native elders and dancers. If sufficient interest, a dance group will be assembled using class members for spring presentation primarily in the Fairbanks area, including the Festival of Native Arts. |
| ANS 161     | 3 Credits| Fall | Introduction to Tuma Theatre (3+0) 
(Same as THR 161) 
Development and performance of original and traditional theatrical works derived from various Alaska Native cultural heritages and experiences. This course is a prerequisite for ANS/THR 361, Advanced Tuma Theatre and for member ship in the Tuma Theatre touring company. |
| ANS 250     | 3 Credits| Fall | Current Alaska Native Leadership Perspectives (3+0) 
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. |
| ANS 268     | 3 Credits| Fall | Beginning Native Art Studio (1+4) h 
(Same as ART 268) 
Understanding and applying the traditional designs and technologies of Native art. (Prerequisite: ART 105 or permission of instructor.) |
| ANS 300     | 3 Credits| Fall | Alternate Spring | Rhetorical Expression of the Alaska Native Experience (3+0) h 
Hypothetical 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. (Prerequisite: ENGL 111 and permission of instructor.) |
| ANS 310     | 3 Credits| Fall | The Alaska Native Land Settlement (3+0) s 
Native corporation goals and methods as they implement the Alaska Native Claims Settlement Act and establish themselves within the larger political economy. (Prerequisites: ANTH 245 or PS 283 or HIST 100; ECON 101, 137; or permission of instructor.) |
COURSE DESCRIPTIONS—ALASKA STUDIES / 111

ANS 315  3 Credits  Alternate Spring
Tribe People and Development (3+0) s
(Same as RD 315)

Impact of socioeconomic development processes on tribal peoples in third and fourth world societies. Implications of these processes for Alaska Native people. (Prerequisite: Junior standing or permission of the instructor. Next offered 1991-92.)

ANS 320  3 Credits  Spring
Language and Culture: Applications of Alaska (3+0) s
(Same as ANTH 320)

Language, ethnicity, and their interrelationships. Communicating ethnic identity. Patterns of language use which affect communication between ethnic groups. Applicability of these concepts to Native/non-Native communication patterns. (Prerequisites: ANS 120 and ANL 215 or 216 or permission of instructor.)

ANS 325  3 Credits  Alternate Spring
Native Self Government (3+0) s
(Same as PS 325)

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 100, PS 263. Next offered: 1991-92.)

ANS 340  3 Credits  Fall
Contemporary Native American Literature (3+0) h
(Same as ENGL 340)

Contemporary Native American writing in English, including novels, short stories, poetry, and plays. Examples of Native American film when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111 or permission of instructor.)

ANS 349  3 Credits  Fall
Narrative Art of Alaska Native Peoples (3) s
(Same as ENGL 349)

Traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111 or permission of instructor.)

ANS 351  1-3 Credits  Fall, Spring
Practicum in Native Cultural Expression (0+variable)

Individual supervised activities in advanced organization, promotion, and expression of Alaska Native cultural heritage projects (Festival of Native Arts leadership, Tuna Theatre, Thesata magazine, etc.) Continuation of ANS 251. (Prerequisite: Permission of instructor.)

ANS 360  1 Credit  Spring
Advanced Native Dance (0+2) h

Advanced techniques with emphasis on the cultural meanings of the dance performance. (Prerequisite: ANS 160 or permission of instructor.)

ANS 361  3 Credits  Fall
Advanced Tuna Theatre (3+0) h
(Same as THR 361)

Continuation of ANS/THR 161 with emphasis on performance of previously prepared materials. Rehearsals during the first half of the semester will be followed by local area performances. Upon successful completion of the course, students will be eligible for the Tuna Theatre Company's spring and summer tours (see THR 101-401). (Prerequisites: ANS/THR 161 and either THR 221, 241, 343, 347 or permission of instructor.)

ANS 365  3 Credits  Fall
Native Art of Alaska (3+0) h
(Same as ART 365)

Art forms of the Eskimo, Indian and Aleut from prehistory to the present. Changes in forms through the centuries. (Prerequisite: Advanced standing or permission of the instructor.)

ANS 366  3 Credits  Alternate Spring
Northwest Coast Indian Art (3+0) h
(Same as ART 366)

Arts of the Northwest Coast Indians and the place of the art in their culture. (Next offered: 1991-92.)

ANS 367  3 Credits  Alternate Spring
Eskimo Art (3+0) h
(Same as ART 367)

Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces to the beginning of the 20th century. (Next offered: 1992-93.)

ANS 368  3 Credits  Fall, Spring
Intermediate Native Art Studio (1+4) h
(Same as ART 368)

Understanding and applying advanced traditional designs and technologies of Native art. (Prerequisite: ART 266 or permission of instructor.)

ANS 375  3 Credits  Alternate Spring
Native American Religion and Philosophy (3+0) h

Philosophical aspects of Native American world views. Systems of belief and knowledge, explanations of natural phenomena, relations of humans to natural environment through ritual and ceremonial observances. (Prerequisite: ANTH 242 or permission of the instructor; PHIL 201 is recommended. Next offered: 1991-92.)

ANS 401  3 Credits  Fall, Spring
Cultural Knowledge of Native Elders (3+0) h

Study with prominent Native tradition-bearers in Native philosophies, values, and oral traditions. Traditional knowledge elicited through the cultural heritage documentation process. (Prerequisites: HIST 100 or ANTH 242 and upper division standing.)

ANS 420  3 Credits  Fall
Alaska Native Education (3+0) s
(Same as ED 420)

School systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisite: ANTH 242 or HIST 100; or permission of instructor.)

ANS 425  3 Credits  Fall
Federal Indian Law and Alaska Natives (3+0) s

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 101 and HIST 100; or permission of instructor; PS 263 is recommended.)

ANS 450  3 Credits  Alternate Spring
Comparative Aboriginal Rights and Policies (3+0) s
(Same as PS 450)

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. (Prerequisite: Upper division standing or instructor's permission. Next offered: 1991-92.)

ANS 468  3 Credits  Fall, Spring
Advanced Native Art Studio (1+4) h
(Same as ART 468)

Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms. (Prerequisite: ART 368 or permission of instructor.)

ANS 475  3 Credits  Spring
Alaska Native Social Change (3+0) s

Tradition and change in Native social institutions in contemporary society. Methods of identifying and analyzing significant Native social change processes for public understanding. (Prerequisite: ANTH 242 or permission of the instructor.)

Alaska Studies

ALST 102A  1 Credit  As Demand Warrants
Creative Response (1+0)

Samples of stories of indigenous people of Alaska. Reviews work of Native Alaskan artists. Examines music of Inupiat, Yupik and Koyukon cultures (songs and dances).

ALST 103B  1 Credit  The People (1+0)

Survey of social sciences in Alaska and relationships to Alaskan culture.

ALST 103C  1 Credit  The Land (1+0)

Geography and branches of earth science related to the land mass of Alaska. Current issues.

ALST 107  1 Credit  As Demand Warrants

Land Resource Management (1+4)

Tools for overseeing land use and the political aspects of natural resource management.
### American Sign Language

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<th>Code</th>
<th>Credit(s)</th>
<th>Description</th>
<th>Note</th>
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<tbody>
<tr>
<td>ASLG 101</td>
<td>3</td>
<td>As Demand Warrants American Sign Language I (3+0h) Visual-gestural language used by most deaf Americans. Acquisition of receptive and expressive conversational skills. Cultural aspects of everyday life experiences of deaf people.</td>
<td>As prerequisite: ASLG 101 or permission of instructor.</td>
</tr>
<tr>
<td>ASLG 110</td>
<td>1</td>
<td>As Demand Warrants American Sign Language Pract (1+0h) Skill development in use of American Sign Language. Conducted entirely in sign language with aspects of deaf culture included. All skill levels.</td>
<td>Poor signers.</td>
</tr>
</tbody>
</table>
| ASLG 202 | 3         | As Demand Warrants American Sign Language II (3+0h) Expressive and receptive conversational skills. Understanding the culture that is an integral part of the language. Continuation of American Sign Language I. (Prerequisite: ASLG 101 or permission of instructor.) | |}

### Anthropology

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<tr>
<td>ANTH 100X</td>
<td>3</td>
<td>Fall Individual, Society and Culture (3+0) s An examination of the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts.</td>
<td>As prerequisite: ANTH 101 or 202 or permission of instructor.</td>
</tr>
<tr>
<td>ANTH 101</td>
<td>3</td>
<td>Fall, Spring Introduction to Anthropology (3+0) s Human societies and cultures based on the findings of the four subfields of the discipline: archaeological, biological, cultural and linguistic. Also available via Independent Learning. Materials fee: $10.00.</td>
<td>As prerequisite: ANTH 104, 201 or 211 or permission of instructor.</td>
</tr>
<tr>
<td>ANTH 102</td>
<td>3</td>
<td>Fall, Spring Faces of Culture (3+0) s Television-enhanced instruction in cultural anthropology. Methods, theories, fundamental concepts and foundations for understanding differences in cultures. Telecourse fee: $20.00.</td>
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<td>Course Code</td>
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<tr>
<td>ANTH 307</td>
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<td>Kinship and the Family (3+0) s</td>
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<td>ANTH 300</td>
<td>3</td>
<td>Arctic Prehistory (3+0) s</td>
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<tr>
<td>ANTH 315</td>
<td>3</td>
<td>Human Biology (2+3) n</td>
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<td>ANTH 320</td>
<td>3</td>
<td>Language and Culture: Applications to Alaska (3+0) s (Same as ANS 320)</td>
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<td>ANTH 321</td>
<td>3</td>
<td>Physical Anthropology of the Americas (3+0) n</td>
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<tr>
<td>ANTH 323</td>
<td>3</td>
<td>Archaeology of China from Earliest Times to 771 B.C. (3+0) s</td>
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<tr>
<td>ANTH 326</td>
<td>3</td>
<td>The People of Alaskan Southwest: Aleuts Kodiak Islanders and the Chugach (3+0) s</td>
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<td>ANTH 332</td>
<td>3</td>
<td>The Inupiaq and Yup’ik Peoples (3+0) s</td>
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<td>ANTH 363</td>
<td>3</td>
<td>Athabaskan Peoples of Alaska and Adjacent Canada (3+0) s</td>
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<td>ANTH 410</td>
<td>3</td>
<td>History of Social/Cultural Anthropology (3+0) s</td>
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<td>ANTH 412</td>
<td>3</td>
<td>Anthropology of Art (3+0) s</td>
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<td>ANTH 413</td>
<td>3</td>
<td>Archaeological Method and Theory (2+3) s</td>
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<td>ANTH 414</td>
<td>3</td>
<td>Environmental Archaeology (3+0) n</td>
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<td>ANTH 417</td>
<td>3</td>
<td>Analytical Techniques (3+0)</td>
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<td>ANTH 422</td>
<td>3</td>
<td>Human Osteology (2+3) n</td>
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<td>Paleoenthropology (2+3)</td>
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<td>ANTH 465</td>
<td>3</td>
<td>Geoarchaeology (3+0) n (Same as GEOS 465)</td>
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<td>ANTH 600</td>
<td>0-1</td>
<td>Ecological Anthropology (3+0) n</td>
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<td>ANTH 601</td>
<td>3</td>
<td>Proseminar in Social/Cultural Anthropology (3+0) s</td>
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<tr>
<td>ANTH 604</td>
<td>3</td>
<td>Seminar: Language and Culture (3+0) s</td>
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<td>ANTH 608</td>
<td>3</td>
<td>Classics in Anthropology (3+0) s</td>
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<tr>
<td>ANTH 610</td>
<td>3</td>
<td>Northern Indigenous Peoples and Contemporary Issues (3+0) (Same as NORS 610)</td>
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<tr>
<td>ANTH 611</td>
<td>3</td>
<td>Proseminar in Archaeology (3+0) s</td>
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<td>ANTH 612</td>
<td>3</td>
<td>Palaeocology (3+0) s</td>
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<td>ANTH 613</td>
<td>3</td>
<td>Seminar: Problems in Arctic Archaeology (3+0)</td>
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<td>ANTH 614</td>
<td>3</td>
<td>Archaeology of Siberia (3+0)</td>
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<tr>
<td>ANTH 615</td>
<td>3</td>
<td>Seminar: Archaeological Method and Theory (3+0)</td>
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<tr>
<td>ANTH 616</td>
<td>3</td>
<td>Classics in Archaeology (3+0) s</td>
<td></td>
</tr>
</tbody>
</table>

All prerequisite requirements are subject to change, so it's always a good idea to check with the instructor or the course catalog for the most current information.
ANTH 621  3 Credits  Alternate Spring  Proseminar in Physical Anthropology (3+0)
ANTH 622  3 Credits  Alternate Fall  Problems in Physical Anthropology (3+0)
ANTH 630  3 Credits  Alternate Spring  Anthropological Field Methods (3+0)
ANTH 637  3 Credits  As Demand Warrants  Methods in Ethnohistorical Research (3+0)
ANTH 640  3 Credits  As Demand Warrants  Problems in Anthropology (3+0)
ANTH 650  3 Credits  Every Third Spring  Anthropological Perspectives on Russian America (3+0)

Applied Art

APAR 100  1 Credit  As Demand Warrants  Basic Video Workshop (1+1)
APAR 101  1 Credit  As Demand Warrants  Editing Videotape (1+1)
APAR 105  1 Credit  As Demand Warrants  Community TV Production (1+1)
APAR 107  1 Credit  As Demand Warrants  Beading (1-1)
APAR 157  1-2 Credits  As Demand Warrants  Skin Sewing (1+2)

Applied Business

ABUS 051  3 Credits  As Demand Warrants  Bookkeeping For Business (3+0)
ABUS 052  3 Credits  As Demand Warrants  Bookkeeping for Business II (3+0)
ABUS 056  1 Credit  As Demand Warrants  Mathematics for the Office (1+0)
ABUS 070  1 Credit  Fall, Spring  Job Readiness Skills (1+0)
ABUS 081  3 Credits  As Demand Warrants  World of Business (3+0)
ABUS 083  3 Credits  As Demand Warrants  Introductory Accounting (3+0)
ABUS 100  3 Credits  As Demand Warrants  Accounting For Small Business (3+0)
ABUS 120  1-3 Credits  As Demand Warrants  Basics of Investing (1-3+0)
ABUS 130  3 Credits  As Demand Warrants  Real Estate (3+0)
ABUS 142  2 Credits  As Demand Warrants  Payroll Accounting (2+0)
ABUS 143  2 Credits  As Demand Warrants  Office Accounting II (2+0)
ABUS 145  3 Credits  As Demand Warrants  Applied Accounting Issues for Small Businesses (3+0)
ABUS 151  3 Credits  Fall  Village Based Entrepreneurship (3+0)
ABUS 154  3 Credits  As Demand Warrants  Human Relations (3+0)
ABUS 155  2 Credits  As Demand Warrants  Business Math (2+0)
ABUS 156  2 Credits  As Demand Warrants  Writing for the Office (2+0)
ABUS 160  3 Credits  As Demand Warrants  Principles of Banking (3+0)
ABUS 261 3 Credits As Demand Warrants
Analyzing Financial Statements (3+0)
Statement analysis, accounting data, cash flow management ratios, comparative statements, forecasting, liquidity, solvency and capital structure related to financial conditions and performance of modern business enterprise.

ABUS 272 3 Credits As Demand Warrants
Small Business Planning (3+0)
Small business planning process elements including the components of a written business plan.

ABUS 273 3 Credits As Demand Warrants
Managing A Small Business (3+0)
Entrepreneurship and management, starting a new business, buying an existing business or franchise. Managing, marketing, staffing, financing, budgeting, pricing, operational analysis and controls.

ABUS 699, 199, 299 1-3 Credits As Demand Warrants
Practicum in Applied Business
Supervised training and work experience. Analysis of work experiences and relationship of the job to career and academic goals. Managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning. (Prerequisite: Permission of the instructor.)

Applied Mining Technology

AMIT 101 3 Credits As Demand Warrants
Introduction To Mining (3+0)
Fundamentals of surface and underground mining, economic planning, proper exploration designs, environmental concerns, safety factors.

AMIT 109 1 Credit As Demand Warrants
Underground Mine Safety (1+0)
Rights of miners, self rescue devices, introduction to the work environment, escapeways, roof and ground control, ventilation, health, cleanup, hard recognition, first aid, mine gasses, electrical hazards. Course fulfills the Mine Safety Health Administration requirements for new underground miner training. Students are awarded MSHA certificate upon course completion. Materials fee: $3.00.

AMIT 110 3 Credits As Demand Warrants
New Underground Miner Training (3+0)
Orientation to the mine environment, general mine inspection, scaling, staging, drilling, rock bolting, blasting, mucking, and mine rescue. Provides the inexperienced underground miner with the mandatory MSHA federal training to become employable. Materials fee: $50.00.

AMIT 120 2 Credits As Demand Warrants
Explosives I (2+0)
Theory and safe use of explosives with a focus on blasting agents used for rock excavation.

AMIT 125 3 Credits As Demand Warrants
Mineral Exploration Techniques (3+0)
Modern, scientific exploration and prospecting techniques utilized in Alaska since the 1970's. Exploration design, ore deposit models, exploration geochemistry and geophysics, drilling sampling and geostatistics. Also available via Independent Learning.

AMIT 129 1 Credit As Demand Warrants
Surface Mine Safety (1+0)
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. Materials fee: $3.00.

AMIT 130 3 Credits As Demand Warrants
Surface Mining Operations (3+0)
Safe operations of a surface mine. Placer gold, sand and gravel, coal, and open pit metal mines.

AMIT 140 3 Credits As Demand Warrants
Environmental Permitting (3+0)
Mineral development permits required in Alaska. Students are encouraged to provide their own case histories.

AMIT 151 1 Credit As Demand Warrants
Settling Pond and Recycle Techniques (1+0)
Design of settling ponds and recycle systems. Students will work with individual case histories.

AMIT 152 1 Credit As Demand Warrants
Fire Assay Techniques (1+0)
Sampling, theory and practice of fire assaying. Fluxes, oxidation and reduction reactions, fusion of assay charges, cupellation, annealing, micro-weighing and assay charge calculation.

AMIT 153 1 Credit As Demand Warrants
Laboratory Analysis (1+0)
Production laboratory procedures for sample analysis, heap leaching and titrations. Individual projects required.

AMIT 154 1 Credit As Demand Warrants
Water Quality and Flocculents (1+0)
Water quality processes using flocculents; removal of total suspended solids from placer mining waste water.

AMIT 155 1 Credit As Demand Warrants
Drilling Technology (1+0)
Terminology and techniques used in exploration and production drilling.

AMIT 156 1 Credit As Demand Warrants
Applied Cartography (1+0)
Map and chart preparation. Drafting skills for prospecting maps, mine maps, permits and data presentation.

AMIT 161 1 Credit As Demand Warrants
Alaska Ore Deposits (1+0)
Geology, ore reserves and preliminary mining plans of significant Alaskan mineral deposits.

AMIT 162 1 Credit As Demand Warrants
Geochemical Sampling (1+0)
Hands-on scientific sampling methods for rock, soil, pan concentrates, stream sediments, air and water.

AMIT 170 3 Credits As Demand Warrants
Fundamentals of Coal Mining (3+0)
Origin and types of Alaskan and other coal deposits, exploration and planning methods, extraction processes for underground and surface mines, mining safety, coal preparation, and reclamation. Job requirements, safety, and environmental consideration. Optional field trip to an active coal mine. Materials fee: $5.00.

AMIT 180 3 Credits As Demand Warrants
Colored Stone Grading and Evaluation (3+0)
Grading, appraisals, and identification of colored stones. Formation and structure, properties, deposits and production, and descriptions of major gemstones.

AMIT 185 1 Credit As Demand Warrants
Diamond Evaluation and Grading (1+0)
Colors and clarity grading of diamonds, mining of raw material, and detection of simulants.

AMIT 205 1 Credit As Demand Warrants
Geomagnetic Surveying (1+0)
Placer gold deposit prospecting using magnetic surveying. Student survey work and data interpretation.

AMIT 206 1 Credit As Demand Warrants
Electromagnetic Surveying (1+0)
Electromagnetic geophysical exploration methods and operations using the VLF-EM-16, an exploration tool for gold and/or massive sulfide deposits.

AMIT 210 3 Credits As Demand Warrants
Advanced Underground Mining (3+0)
Skill training conducted in safety, drilling, blasting, ground support, mucking, maintenance and utilities at the Silver Fox Mine.

AMIT 220 1 Credit As Demand Warrants
Explosives II (1+0)
Advanced techniques in safe use of explosives. Students get 'hands-on' experience in blasting. Materials fee: $20.00.

AMIT 230 1 Credit As Demand Warrants
Field Methods (1+0)
Topographic map reading using a compass and basic field procedures.

AMIT 231 1 Credit As Demand Warrants
Heap Leaching (1+0)
Heap leaching covering cyanide safety, leach pad construction and placement, cyanide processing, thiourea, case histories, applications to Alaska and economics.

AMIT 280 3 Credits As Demand Warrants
Colored Stone Evaluation II (3+0)
Gemstones covered are garnet, pyroxene, organic, inorganic, and specialty stones. A continuation of Colored Stone Evaluation I. (Prerequisite: AMIT 180.)
AMIT 282  1-2 Credits           As Demand Warrants
Mining Coop Work Experience
Practical work experience in a professional mining environment. For the student who has mastered basic mining techniques and terminology. Placement and work assignments depend upon student experience.

Applied Photography

APHO 072  1 Credit           As Demand Warrants
Photography Fundamentals (1+0)
Use of modern cameras to make colorful, well-exposed photographs. Elements of composition, exposure and flash techniques. Students furnish their own camera and film.

APHO 073  1 Credit           As Demand Warrants
Process and Print Color Slides (1+0)
Development of color film, preparation of projection slides, color prints and enlargements, mixing color filters for special effects; and setting up a small home darkroom. Students must have a camera and obtain their own film and film processing.

APHO 074  1 Credit           As Demand Warrants
Process/Print Color Negatives (1+0)
Developing print film using the Kodak Flexilcolor C-41 and Hobby-pac processes. Making proof sheets and enlargements using Extraprint 2, Hobby-pac and Ektaprint processes. Students must have a camera and two rolls of film.

Art

ART 100  3 Credits           As Demand Warrants
Art Exploration (3+0)
Exposure to design, printmaking, weaving, and sculpture. Individual studio projects, lectures, and field trips introduce areas for further study.

ART 101  3 Credits           As Demand Warrants
Introduction to Ceramics (3+0)
Making and firing clay objects. Study of clay methods, forming decorations, glazing and firing. For beginning students only.

ART 104  1-3 Credits          As Demand Warrants
Introduction to Drawing
Still lifes, portraits, 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.

ART 105  3 Credits           Fall, Spring
Beginning Drawing (1+4) h
Basic elements in drawing. Emphasis on a variety of techniques and media. Materials fee: $15.00.

ART 113  1-3 Credits          As Demand Warrants
Introduction to Painting (1+2)
Investigation of basic materials, various media and techniques available for painting.

ART 122  1-3 Credits          As Demand Warrants
Introduction to Stained Glass (2+4) h
Fundamental skills to construct stained glass pieces. Basics of glass cutting, leading and soldering. Each student completes a square foot window, a large group project and a suncatcher.

ART 161  3 Credits           Fall, Spring
Two-Dimensional Design (1+4) h
Fundamentals of pictorial form; principles of composition, organization, and structure.

ART 162  3 Credits           Fall, Spring
Color and Design (1+4) h

ART 163  3 Credits           Fall, Spring
Three-Dimensional Design (1+4) h
Fundamental concepts in organization of 3-dimensional forms. Introduction to various materials and construction techniques. Materials fee: $25.00.

ART 200X  3 Credits           Fall, Spring
Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h
(Same as MUS 200X and THR 200X)
Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends.

ART 201  3 Credits           Fall, Spring
Beginning Ceramics (1+4) h
Foundation experiences with clays, glazes, plaster, enamels, glass, kiln stacking and firing. Materials fee: $35.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

ART 205  3 Credits           Fall, Spring
Intermediate Drawing (1+4) h
Exploration of pictorial composition and creative interpretation of subjects. Materials fee: $25.00. (Prerequisite: ART 105.)

ART 207  3 Credits           Fall, Spring
Beginning Printmaking (1+4) h
Concepts and techniques of printmaking. Subject areas taken from relief, intaglio, serigraphy, lithography. Materials fee: $25.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

ART 208  2 Credits           As Demand Warrants
Art for the Classroom Teacher (1+2)
(Same as ED 268)
Concepts in art education for persons with limited art background working with young children. Combines a philosophy of art education, art history, and 'hands-on' experiences to enable the teacher to effectively integrate visual arts into the curriculum as enjoyment and enrichment.

ART 209  3 Credits           Fall, Spring
Beginning Metalsmithing (1+4) h
Basic techniques of fine metalsmithing and jewelry. Materials fee: $35.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

ART 211  3 Credits           Fall, Spring
Beginning Sculpture (1+4) h
Basic sculpture techniques and principles. Materials fee: $35.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

ART 213  3 Credits           Fall, Spring
Beginning Painting (Acrylic or Oil) (1+4) h
Basic materials and techniques in either medium. Pictorial principles and organization of paintings. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

ART 223  3 Credits           Every Third Spring
Watercolor Painting (1+4) h
Painting in various transparent and opaque media (watercolor, tempera, polymer, casein). Emphasis on techniques and subjects. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor. Next offered: 1993-94.)

ART 261  3 Credits           Fall
ART 262  3 Credits           Spring
History of World Art (3+0) h
Origins of art and its development from the beginning through contemporary painting, sculpture and architecture. Art 261-262 may be taken in reverse order; however, course content is presented in a chronological sequence beginning with fall semester. (Prerequisite: Sophomore standing.)

ART 265  3 Credits           Fall, Spring
Beginning Native Art Studio (1+4) h
(Same as ANS 265)
Understanding and applying the traditional designs and technologies of Native art. (Prerequisite: ART 105 or permission of instructor.)

ART 301  3 Credits           Fall, Spring
Intermediate Ceramics (1+4) h
Continuation of beginning ceramics. Emphasis on glaze calculations and advanced plaster techniques. Materials fee: $35.00. (Prerequisite: ART 201 or permission of instructor.)

ART 305  3 Credits           Spring
Advanced Drawing (1+4) h
Development and refinement of individual problems in drawing. Can be repeated for credit with permission of instructor. Materials fee: $25.00. (Prerequisite: ART 205 or permission of instructor.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Term</th>
<th>Fee</th>
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</thead>
<tbody>
<tr>
<td>ART 307</td>
<td>3</td>
<td>Intermediate Printmaking (1+4) h</td>
<td>Fall, Spring</td>
<td>Continuation of ART 207 with emphasis on refinement of technique and color printing. Materials fee: $25.00. (Prerequisite: ART 207 or permission of instructor.)</td>
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<tr>
<td>ART 309</td>
<td>4</td>
<td>Intermediate Metalsmithing and Jewelry (1+4)</td>
<td>Fall, Spring</td>
<td>Further investigation of material processes and techniques; some emphasis on design. Materials fee: $35.00. (Prerequisite: ART 209 or permission of instructor.)</td>
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<tr>
<td>ART 311</td>
<td>3</td>
<td>Intermediate Sculpture (1+4) h</td>
<td>Fall, Spring</td>
<td>Exploration in materials and concepts of sculpture. Emphasis on personal creativity and skill development. Materials fee: $35.00. (Prerequisite: ART 211 or permission of instructor.)</td>
</tr>
<tr>
<td>ART 313</td>
<td>3</td>
<td>Intermediate Painting (1+4) h</td>
<td>Fall, Spring</td>
<td>Continued development of expressive skills in painting in any media. Emphasis on pictorial and conceptual problems. (Prerequisite: ART 213.)</td>
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<tr>
<td>ART 324</td>
<td>3</td>
<td>Watercolor Painting and Composition (1+4) h</td>
<td>Fall, Spring</td>
<td>Development of individual approach to watercolor media. Can be repeated for credit with permission of the instructor. (Prerequisite: ART 223.)</td>
</tr>
<tr>
<td>ART 363</td>
<td>3</td>
<td>History of Modern Art (3+0) h</td>
<td>Alternate Spring</td>
<td>Development of modern art forms and theories in the visual arts from the late 19th century to the present. Concentration on the artistic pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Non-objective Art. Abstract Expressionism. Pop Art. Realism and many other &quot;isms.&quot; (Prerequisite: ART 262 or permission of instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>ART 364</td>
<td>3</td>
<td>Italian Renaissance Art (3+0) h</td>
<td>Alternate Spring</td>
<td>Development of the Renaissance from early Florentine to the High Renaissance of Venice. Study of art by Masaccio, Michelangelo, DaVinci, Titian, etc. (Prerequisite: ART 261 or permission of instructor.) Next offered: 1992-93.)</td>
</tr>
<tr>
<td>ART 365</td>
<td>3</td>
<td>Native Art of Alaska (3+0) h</td>
<td>Fall</td>
<td>Art forms of the Eskimo, Indian, and Aleut from prehistory to the present. Changes in forms through the centuries. (Same as ANS 365.)</td>
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<tr>
<td>ART 366</td>
<td>3</td>
<td>Northwest Coast Native Art (3+0) h</td>
<td>Alternate Spring</td>
<td>Art forms of the Northwest Coast Indians and the place of art in their culture. (Same as ANS 366.) Next offered: 1991-92.)</td>
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<tr>
<td>ART 367</td>
<td>3</td>
<td>Eskimo Art (3+0) h</td>
<td>Alternate Spring</td>
<td>Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces to the beginning of the 20th century. (Same as ANS 367.)</td>
</tr>
<tr>
<td>ART 368</td>
<td>3</td>
<td>Intermediate Native Art Studio (1+4) h</td>
<td>Fall, Spring</td>
<td>Undergraduate and independent study of advanced traditional designs and technologies of Native art. (Prerequisite: ART 268 or permission of instructor.) (Same as ANS 368.)</td>
</tr>
<tr>
<td>ART 371</td>
<td>3</td>
<td>Introduction to Computer Art (1+4)</td>
<td>Fall</td>
<td>Digital editing with an overview of the field of computer art. (Prerequisites: Introductory computer course and ART 105, 161, 162, or 163.)</td>
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<tr>
<td>ART 401</td>
<td>3</td>
<td>Advanced Ceramics (1+4) h</td>
<td>Fall, Spring</td>
<td>Emphasis on individual projects, plus a class project on architectural mural(s). May be repeated for credit with permission of instructor. Materials fee: $35.00. (Prerequisite: ART 301 or permission of instructor.)</td>
</tr>
<tr>
<td>ART 407</td>
<td>3</td>
<td>Advanced Printmaking (1+4) h</td>
<td>Fall, Spring</td>
<td>Individual development of technical and creative processes. May be repeated for credit with permission of instructor. Materials fee: $25.00. (Prerequisite: ART 307 or permission of instructor.)</td>
</tr>
<tr>
<td>ART 409</td>
<td>3</td>
<td>Advanced Metalsmithing and Jewelry (1+4) h</td>
<td>Fall, Spring</td>
<td>Materials and processes; introduction to hollow and forging skills and forging. May be repeated for credit with permission. Materials fee: $35.00. (Prerequisite: ART 309 or permission of instructor.)</td>
</tr>
<tr>
<td>ART 411</td>
<td>3</td>
<td>Advanced Sculpture (1+4) h</td>
<td>Fall, Spring</td>
<td>Principles, practical and concepts of sculpture. May be repeated for credit with permission of instructor. Materials fee: $35.00. (Prerequisite: ART 311 or permission of instructor.)</td>
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<tr>
<td>ART 413</td>
<td>3</td>
<td>Advanced Painting (1+4) h</td>
<td>Fall, Spring</td>
<td>Individual experimentation and technical/conceptual development in painting. Can be repeated for credit with permission of instructor. (Prerequisite: ART 313.)</td>
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<tr>
<td>ART 417</td>
<td>3</td>
<td>Lithography (1+4) h</td>
<td>Every Third Fall</td>
<td>An exploration of stone and metal plate lithography. Materials fee: $25.00. (Prerequisite: ART 105, 207, or permission of instructor. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>ART 419</td>
<td>3</td>
<td>Life Drawing (1+4) h</td>
<td>Fall, Spring</td>
<td>Drawing from life; study of artistic anatomy. Materials fee: $30.00. (Prerequisite: ART 305 or permission of instructor.)</td>
</tr>
<tr>
<td>ART 427</td>
<td>3</td>
<td>Relief (1+4) h</td>
<td>Every Third Spring</td>
<td>Woodcut and monotype with emphasis on color. Materials fee: $25.00. (Prerequisites: ART 105, 207, and 213, or permission of instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>ART 437</td>
<td>3</td>
<td>Intaglio (1+4) h</td>
<td>Every Third Fall</td>
<td>Intaglio printmaking with emphasis on experimentation and color photo intaglio printing. Materials fee: $35.00. (Prerequisite: ART 105, 162, 207, or permission of the instructor. Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ART 441</td>
<td>3</td>
<td>Lost Wax Casting (1+4) h</td>
<td>Every Third Spring</td>
<td>Design and execution of jewelry and other small metal objects by lost wax casting. Materials fee: $35.00. (Prerequisite: ART 409 or permission of instructor.) Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ART 442</td>
<td>3</td>
<td>Nonferrous Forging (1+4) h</td>
<td>Every Third Spring</td>
<td>Design and execution of hammer forged nonferrous metal objects. Materials fee: $35.00. (Prerequisite: ART 409 or permission of instructor.) Next offered: 1991-92.)</td>
</tr>
<tr>
<td>ART 443</td>
<td>3</td>
<td>Holloware (1+4) h</td>
<td>Every Third Spring</td>
<td>Design and construction of holloware by raising, sinking, and fabrication. Materials fee: $35.00. (Prerequisite: ART 409 or permission of instructor.) Next offered: 1991-92.)</td>
</tr>
<tr>
<td>ART 447</td>
<td>3</td>
<td>Silkscreen (1+4) h</td>
<td>Every Third Spring</td>
<td>Silkscreen printing with photo process. Materials fee: $25.00. (Prerequisite: ART 105, 162, 207, or permission of the instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>ART 450</td>
<td>3</td>
<td>Raku Pottery (1+4) h</td>
<td>Every Third Fall</td>
<td>Raku bodies, glazes and decorations. Kiln building. Materials fee: $35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ART 451</td>
<td>3</td>
<td>Earthenware (1+4) h</td>
<td>Every Third Spring</td>
<td>Earthenware pottery bodies, glazes, decorations and firing techniques. Materials fee: $35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ART 452</td>
<td>3</td>
<td>Porcelain (1+4) h</td>
<td>Every Third Fall</td>
<td>Porcelain bodies, glazes, decorations and firing techniques. Materials fee: $35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>ART 453</td>
<td>3</td>
<td>Kiln Design and Construction (1+4) h</td>
<td>Every Third Spring</td>
<td>Kiln design and construction including building a full-sized kiln. Materials fee: $35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1991-92.)</td>
</tr>
</tbody>
</table>
ART 454 3 Credits  Every Third Fall
Vapor Glazing (1+4) h
Clays, glazes, decorative techniques and kilns used in "salm glazing" (i.e. vapor glazing). Materials fee: $35.00. (Prerequisite: ART 201 and permission of instructor. Next offered: 1991-92.)

ART 455 3 Credits  Spring
Studio Glass (1+4) h
Studio participation in cold glass and limited hot glass techniques. Materials fee: $35.00. (Prerequisite: Advanced standing or permission of instructor.)

ART 468 3 Credits  Fall, Spring
Advanced Native Art Studio (1+4) h
Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms. (Prerequisite: ART 368 or permission of instructor.)

ART 471 3 Credits  Spring
Computer Art (1+4)
Production and reproduction techniques for digital painting, images manipulation and typographers. (Prerequisites: ART 105 and ART 161, 162 or 163; ART 371 or CS 201 or equivalent.)

ART 499 1-3 Credits  Fall, Spring
Thesis Project
Directed work toward individual exhibition; completed outside regularly scheduled classes. Required for B.F.A. candidates. (Prerequisites: Senior standing.)

Atmospheric Science

ATM 636 3 Credits  Alternate Fall
Physics of the Lower Atmosphere (3+0)

ATM 646 3 Credits  Alternate Spring
Dynamics of the Atmosphere and Ocean (3+0)

ATM 656 3 Credits  Alternate Spring
Atmospheric Circulation, Weather and Climate

Automotive

AUTO 080 2 Credits  As Demand Warrants
Driver and Safety Education (2+0)
Drivers 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 operation.

AUTO 081 1 Credit  As Demand Warrants
Behind-the-Wheel Training (0+3)
Practical driver training in actual situations. Expected student outcome is obtaining a State of Alaska driver's license. (Prerequisite: Must have a valid Alaska Driver's Permit.)

AUTO 100 1 Credit  As Demand Warrants
Introduction to Small Engine Repair (1+0)
Parts and functions of a small engine and its electrical system. Dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs.

AUTO 103 1 Credit  As Demand Warrants
Auto Tune-Up (1+0)
A dual purpose course serving as an introduction to an advanced course and as a consumer interest course. Uses a "hands-on" approach to basic troubleshooting and maintenance, with tools commonly available.

AUTO 170 1 Credit  As Demand Warrants
Snowmachine Maintenance and Repair (1+0)
Fundamental skills for operation and repair. Engine tune-up, lubrication, belt and track repair. Alignment, and basic problems encountered during operation.

Aviation

AVTY 100 4 Credits  As Demand Warrants
Private Pilot Ground School (4+0)
Study of aircraft and engine operation and limitations, instrument flight systems, navigation, navigation computers, national weather information and dissemination service. Federal aviation regulations, flight information publications, radio communications and navigation. Preparation for FAA private pilot-airplane written exam. Also available via Independent Learning.

AVTY 101 2 Credits  As Demand Warrants
Private Pilot Flight Training (2+0)
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. (Prerequisite: Department approval required.)

AVTY 102 3 Credits  As Demand Warrants
Commercial Ground Instruction (4+0)
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.

AVTY 103 2 Credits  As Demand Warrants
Commercial Flight Training (2+0)
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. (Prerequisite: Private Pilot certificate, AVTY 102 or concurrent enrollment, or passing score on FAA Commercial Pilot written exam, department approval required.

AVTY 105 1 Credit  As Demand Warrants
Seaplane Flight Training (1+0)
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of single-engine sea rating. (Prerequisites: Private pilot certificate or higher, department approval required.)

AVTY 107 1 Credit  As Demand Warrants
Multi-Engine Flight Training (1+0)
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.)

AVTY 108 1 Credit  As Demand Warrants
Introduction to Skis (1+0)
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. (Prerequisite: Private pilot certificate.)

AVTY 109 1 Credit  As Demand Warrants
Glider Flight Training (1+0)
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. (Prerequisite: Department approval.)

AVTY 110 1 Credit  As Demand Warrants
Biennal Flight Review (1+0)
Review of federal aviation regulations, air traffic control procedures, communications, normal and emergency aircraft procedures, and aircraft performance. (Prerequisite: Student must have private pilot certificate.)

AVTY 111 3 Credits  As Demand Warrants
Fundamentals of Aviation (3+0)
Fall
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.

AVTY 116 3 Credits  As Demand Warrants
Aviation History (3+0)
Aviation from its early days to the present. People, places, and machines contributing to the development of Alaskan aviation.
AVTY 117  3 Credits As Demand Warrants
Aviation Weather (3+0)
Weather and its effects on air transportation and air traffic control. Weather reports and forecasts. Methods of weather distribution including teletype, voice lines, broadcasts, and other systems used by the U.S. Government and airway users.

AVTY 119  1 Credit As Demand Warrants
Flight Simulators Instruction Basic Procedures (0+2)
Individualized operation and use of the LINK GAT-I Flight simulator and selected practice in basic flight maneuvers, procedures, and techniques. A supplement to both private pilot ground school and actual flight training. (Prerequisite: AVTY 100 or concurrent enrollment in AVTY 100, 113 or 112.)

AVTY 153  1-3 Credits As Demand Warrants
Preventive Maintenance (1-3+0)
Mechanics of the airplane, its power plant and systems to enable the student to evaluate malfunctions and make maintenance decisions. Designed for the pilot-owner. (Prerequisite: AVTY 100 or permission of instructor.)

AVTY 200  4 Credits As Demand Warrants
Instrument Ground School (3+3)
Instrument flight operations in detail, altitude instrument flying, air traffic control and navigation facilities, piloting responsibilities, IFR enroute charts, instrument approach procedures, airspace and airway route system, ATC operations and procedures. Federal Aviation Regulations, flight planning, human factors, meteorology. Includes visits to FAA RAPCO and ATC/FAA facilities. Laboratory consists of at least 10 hours of instruction or by an authorized instructor in an FAA-approved instrument ground training. The student is responsible for making arrangements for an appropriate instrument ground training, instrument instructor, and financing. (Prerequisites: AVTY 102 or permission of instructor.)

AVTY 202  3 Credits As Demand Warrants
Flight Instructor Ground School (3+0)
Preparation for the FAA certified flight instructor or advanced ground instructor written exam. (Prerequisite: Commercial pilot certificate or permission of instructor.)

AVTY 203  2 Credits As Demand Warrants
Flight Instructor Flight Training (2+0)
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training meets federal aviation regulations. Course completion requires obtaining of certified flight instructor certificate. (Prerequisites: Commercial pilot certificate with instrument rating, AVTY 202 or concurrent enrollment; or passing score on FAA flight instructor written exams; department approval.)

AVTY 205  3 Credits As Demand Warrants
Instrument Instructor Flying (3+0)
Preparation for certification as an instrument flight instructor. (Prerequisites: Commercial flight instructor certificate and department approval.)

AVTY 206  4 Credits As Demand Warrants
ATP Ground Instruction (4+0)
Preparation for the FAA airline transport pilot written exam. (Prerequisite: Compliance with FAR 61.151 and 61.55 or department permission.)

AVTY 207  2 Credits As Demand Warrants
ATP Flying (2+0)
Qualification for single engine 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 61.55; AVTY 206 or passing score on FAA airline transport pilot written exam; current FAA first class medical certificate.)

AVTY 208  Credits As Demand Warrants
Flight Simulator Operation (3+0)
Advanced training in a flight simulator. (Prerequisites: Private pilot certificate or higher, instrument rating, certified flight instructor or instrument ground instructor certificate, or department permission.)

AVTY 210  1 Credit As Demand Warrants
Simulated Flight Instruction: Advanced Procedures (0+3)
Training utilizing the GAT-I Flight Simulator (individually scheduled through the aviation department). A UAF approved instructor must direct and accompany the student while the simulator is in operation. Time accumulated may be applied to requirements of advance ratings or flight as specified in Part 16 of the Federal aviation regulations.

AVTY 211  3 Credits As Demand Warrants
Instrument Flying (3+0)
Flight instruction provided by an approved pilot school designed to qualify commercial pilot for instrument rating. Training meets federal aviation regulations. Includes instrument flying, flight planning, human factors, meteorology. Includes visits to FAA RAPCO and ATC/FAA facilities. Laboratory consists of at least 40 hours of instruction or by an authorized instructor in an FAA-approved instrument flying. (Prerequisite: Private or commercial pilot certificate or AVTY 200 [concurrent enrollment allowed] or passing score on FAA private commercial pilot written exam or permission of department.)

AVTY 226  4 Credits As Demand Warrants
Flight Engineer Ground School (4+0)
A comprehensive examination of the major systems of one of the following aircraft: turbojet (B-727, DC-8, B-707); turboprop (I-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 and department approval.)

AVTY 231  3 Credits As Demand Warrants
Arctic Survival (3+Arr.)
(Same as NRM 231)
Use of principles, procedures, techniques and equipment to survive in extreme arctic conditions and to assist in safe recovery. Lab required. Materials fee: $35.00.

AVTY 232  3 Credits As Demand Warrants
Aviation Astronomy and Navigation (3+0)
Air navigation and astronomy, including charts, equipment, stars and constellation identification, and calculations.

AVTY 233  1 Credit As Demand Warrants
Loran C Navigation (1+0)
The theory of Loran 'C' and positive and adverse conditions regarding its use. Use of points programmed into the computer, effective navigation, and preprocessing the computer.

AVTY 235  3 Credits As Demand Warrants
Elements of Weather (3+0)
(Same as NRM 235)
Weather as it affects aircraft operators with an emphasis on Interior Alaska.

AVTY 239  4 Credits As Demand Warrants
Aircraft Dispatcher (4+0)
Continuing functions in driving the aircraft and other departments of an airline business. Those wanting to be eligible for aircraft dispatcher certificate must be 23 years of age.

AVTY 3010 W 3 Credits Fall
Airworthiness
(Availability note: UAF School of Aviation)

AVTY 302  2 Credits Spring
Aerial Data Collection (2+0)
(Same as NRM 302)
Uses of aircraft to collect resource data or observations through operation of remote sensing data equipment. Mission design and sampling strategies. (Prerequisite: AVTY 301.)

AVTY 302L  1 Credit Spring
Aerial Data Collection Laboratory (1+0)
(Same as NRM 302L)
Optional Lab portion of AVTY 302. (Prerequisites: AVTY 301, 302.)

AVTY 305  3 Credits Spring
Aviation Law (3+0)
Impact of law and insurance on the aviation industry for pilots, aircrew, and other personnel; emphasis on commercial operations and the air transport service; history of the FAA; aircraft ownership; aviation insurance; FAA enforcement procedures; negligence; product liability. (Prerequisites: AVTY 102 and 200 or permission of instructor.)

AVTY 402  2 Credits Spring
Aircraft Management (3+0)
(Same as NRM 402)
Securing, dispatching, and monitoring aircraft operations. Safety, security, and community relations. Cost-effective scheduling and personnel management. (Prerequisite: AVTY 301.)

AVTY 405  3 Credits Fall
Advanced Aircraft Operations (3+0)
Techniques and requirements associated with the operation of turbine powered aircraft, remotely piloted aircraft, helicopters, and STOL aircraft for pilots and air crew; safety; systems; aerodynamics; operating characteristics. (Prerequisites: AVTY 100, 111, 301 or 302 or permission of instructor.)
### Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 102</td>
<td>3</td>
<td>Summer, As Demand Warrants</td>
<td>High Latitude Biology (3+0)</td>
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<tr>
<td>BIOL 103X</td>
<td>4</td>
<td>Fall, Spring</td>
<td>Biology and Society (3+3)</td>
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<tr>
<td>BIOL 104X</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Natural History of Alaska (2+0)</td>
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<tr>
<td>BIOL 105X</td>
<td>4</td>
<td>Fall</td>
<td>Fundamentals of Biology I and II (3+3)</td>
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<tr>
<td>BIOL 106X</td>
<td>4</td>
<td>Fall</td>
<td>Fundamentals of Biology II (3+3)</td>
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<tr>
<td>BIOL 111X</td>
<td>4</td>
<td>Fall</td>
<td>Human Anatomy and Physiology I and II (3+3)</td>
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<tr>
<td>BIOL 112X</td>
<td>4</td>
<td>Fall</td>
<td>Human Anatomy and Physiology II (3+3)</td>
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<tr>
<td>BIOL 150</td>
<td>3</td>
<td>Independent Learning Only</td>
<td>Introduction to Marine Biology</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>4</td>
<td>Alternate Fall</td>
<td>Vertebrate Anatomy (2+4)</td>
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<td>BIOL 210</td>
<td>4</td>
<td>Spring</td>
<td>Animal Physiology (3+3)</td>
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<tr>
<td>BIOL 222</td>
<td>4</td>
<td>Spring</td>
<td>Biology of the Vertebrates (3+3)</td>
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<tr>
<td>BIOL 239</td>
<td>4</td>
<td>Fall</td>
<td>Introduction to Plant Biology (3+3)</td>
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### BIOL 240 4 Credits
**Fall**

Beginnings in Microbiology (3+3)

Basic and applied microbiology for students who are not majoring in biology but wish to learn about the role that microorganisms play in human health and disease. Laboratory fee: $20.00.

### BIOL 271 4 Credits
**Fall**

Principles of Ecology (4+0) n


### BIOL 305 4 Credits
**Fall**

Introduction to Conservation Biology (3+0)

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 105X, 106X.) Next offered: 1991-92.

### BIOL 307 3 Credits
**Alternate Spring**

Parasitology (2+3) n

Structure, function, life history, and ecology of animal parasites. Laboratory fee: $20.00. (Prerequisites: BIOL 105X, 106X and BIOL 222 or permission of instructor.) Next offered: 1992-93.

### BIOL 320 3 Credits
**Spring**

Biology of Marine Organisms (4+0) n

Marine organisms: ocean as a habitat, distribution, classification, functional morphology, and general biology of the major biological groups; man and the oceans. (Prerequisite: Upper division standing in a biologically-oriented major.)

### BIOL 331 4 Credits
**Spring**

Systematic Botany (2+4) n

Classification of flowering plants with emphasis on Alaskan flora; taxonomic principles, classical and experimental methods of research. Registration is required to insure that each student will prepare a plant collection. Laboratory fee: $20.00. (Prerequisite: BIOL 239 or permission of instructor. BIOL 362 recommended.)

### BIOL 333 3 Credits
**Alternate Fall**

Biology of the Non-Vascular Plants (2+3) n

Structure, function, comparative development, taxonomy, phylogeny and life histories of non-vascular cryptogams (algae, excluding blue greens, fungi, lichens, mosses and hepatics). Laboratory fee: $20.00. (Prerequisite: BIOL 239. Next offered: 1991-92.)

### BIOL 334 4 Credits
**Alternate Fall**

Structure and Function in Vascular Plants (3+4) n

Morphology, anatomy and physiology of vascular plants, stressing the interrelationships between development, anatomy, growth, water relations, photosynthesis, transport and metabolism. Laboratory fee: $20.00. (Prerequisite: BIOL 239. Next offered: 1991-92.)

### BIOL 342 4 Credits
**Spring**

Microbiology (3+3) n

Morphology and physiology of microorganisms (viruses, bacteria, fungi, algae, and protozoa). The role of these organisms in the environment and their relationship to humans. Concepts of immunity. Laboratory stresses aseptic techniques for handling microorganisms. Laboratory fee: $20.00. (Prerequisites: BIOL 105X, 106X.)

### BIOL 361 4 Credits
**Alternate Spring**

Cell Biology (3+3) n

Detailed structure, including ultrastructure, and function of the cell: isolation, composition, and biochemical properties of cell organelles and their integration. Laboratory fee: $20.00. (Prerequisites: A year each of college chemistry and biology. Next offered: 1982-83.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>BIOL 362</td>
<td>4</td>
<td>Fall</td>
<td>Principles of Genetics (3+3) n</td>
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<td>Principles of inheritance: physico-chemical properties of genetic systems.</td>
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<td>Laboratory fee: $20.00. (Prerequisites: BIOL 105X, 106X.)</td>
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<tr>
<td>BIOL 382</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Marine Fishes of Alaska (2+3) n</td>
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<td>Taxonomy, recognition, distribution, life history and ecological relationships of marine fish of Alaska will be studied. Life history traits that make species susceptible to commercial exploitation, changes in ocean circulation or pollution will be emphasized. (Prerequisites: BIOL 105X, 106X and 222. Next offered: 1992-93.)</td>
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<tr>
<td>BIOL 384</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Freshwater Fishes of Alaska (2+3) n</td>
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<td>Life histories of Alaskan freshwater fish emphasizing species sought by fishermen, reproduction, diet, interaction with food, inter-relationships and habitat requirements. (Prerequisites: BIOL 105X and 106X or permission of instructor. Next offered: 1991-92.)</td>
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<tr>
<td>BIOL 406</td>
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<td>Alternate Spring</td>
<td>Entomology (3+3) n</td>
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<td>Biology of insects and related arthropods, with emphasis on anatomy, physiology, behavior, ecology, and evolution. Laboratory emphasizes identification. Laboratory fee: $20.00. (Prerequisites: BIOL 105X, 106X, 271.)</td>
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<tr>
<td>BIOL 407</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Aquatic Entomology (2+3) n</td>
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<td>Ecology, taxonomy, anatomy, physiology and evolution of aquatic insects. Laboratories emphasize identification and field/laboratory techniques. Laboratory fee: $20.00. (Prerequisites: BIOL 105X, 106X, 271. or permission of instructor. BIOL 473 recommended. Next offered: 1992-93.)</td>
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<tr>
<td>BIOL 414</td>
<td>4</td>
<td>Fall</td>
<td>Environmental Physiology (3+3) n</td>
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<td>Functional variations and relationships among animals in various environments. respiration, cardiovascular systems, metabolism, temperature regulation, osmoregulation, excretion, and muscle function. Laboratory fee: $20.00. (Prerequisites: BIOL 210, CHEM 106X and 321 or permission of instructor.)</td>
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<tr>
<td>BIOL 418</td>
<td>4</td>
<td>Alternate Spring</td>
<td>Developmental Biology (3+3) n</td>
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<td>Morphological and molecular aspects of development of multicellular organisms, with emphasis on the regulation of morphogenesis. Laboratory stresses experimental study of vertebrate embryos. Laboratory fee: $20.00. (Prerequisites: BIOL 105X, 106X, 210 or permission of instructor. Next offered: 1991-92.)</td>
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<tr>
<td>BIOL 425</td>
<td>3</td>
<td>Fall</td>
<td>Mammalogy (2-3) n</td>
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<td>Variety of mammals, their behavior, life histories, identification, phylogeny and systemsatics, morphology, distribution, and zoogeography. Laboratory fee: $20.00. (Prerequisites: BIOL 222, and either BIOL 205, or 317 or permission of instructor.)</td>
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<tr>
<td>BIOL 426</td>
<td>3</td>
<td>Spring</td>
<td>Ornithology (2-3) n</td>
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<td>Evolution, anatomy, physiology, distribution, migration, breeding biology of birds, their classification and identification. Laboratory fee: $20.00. (Prerequisites: BIOL 222, and either BIOL 205 or permission of instructor. Concurrent enrollment in BIOL 479 recommended.)</td>
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<tr>
<td>BIOL 427</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Ichthyology (2-3) n</td>
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<td>Major groups of fishes, emphasizing fishes of northwestern North America. Classification, structure, evolution, general biology, and importance to man. Laboratory fee: $20.00. (Prerequisites: BIOL 222, and either BIOL 205 or 317 or permission of instructor. Next offered: 1991-92.)</td>
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<tr>
<td>BIOL 441</td>
<td>3</td>
<td>Fall</td>
<td>Animal Behavior (2-3) n</td>
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<td>Genetic and physiological bases of behavior, evolutionary and ecological principles of individual behavior, sociobiology, and techniques of behavioral observation and analysis. Laboratory fee: $20.00. (Prerequisites: BIOL 210, 271; or permission of instructor. Recommended: BIOL 308.)</td>
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<tr>
<td>BIOL 442</td>
<td>5</td>
<td>Alternate Fall</td>
<td>Bacteriology and Immunology (3+6) n</td>
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<td>Morphology, physiology and systemsatics of bacteria. Microbial pathogens and immunological concepts of immunology. Laboratory fee: $20.00. (Prerequisites: BIOL 342, CHEM 321 or permission of instructor. Next offered: 1992-93.)</td>
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<tr>
<td>BIOL 443</td>
<td>3</td>
<td>Fall</td>
<td>Microbial Ecology (2-3) n</td>
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<td>Laboratory investigation of ecological activity and impact of bacteria and fungi. Isolation and study of important genera. Laboratory fee: $20.00. (Prerequisites: BIOL 342, 271, or 442; or permission of instructor.)</td>
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<tr>
<td>BIOL 444</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Reproductive Biology (3+0) n</td>
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<td>Comparative physiology, endocrinology, behavior and ecology of reproduction in mammals and birds. Hormonal control of reproductive function and behavior; seasonal rhythms, energetics, and life histories of reproduction. Although primarily comparative, aspects of human reproductive function and health covered. (Prerequisite: BIOL 111, 112, and 210.)</td>
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<tr>
<td>BIOL 445</td>
<td>3</td>
<td>Fall</td>
<td>Molecular Evolution (3+3) n</td>
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<td>(Same as CHEM 445) Structure, function and evolution of hereditary molecules (nucleic acids) (Prerequisite: BIOL 362.)</td>
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<tr>
<td>BIOL 471</td>
<td>2</td>
<td>Spring</td>
<td>Population Ecology (2+3) n</td>
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<td>Biology of populations of plants and animals, including population structure, natality, mortality, population growth, regulation of population size, population interactions in herbivory, predation, and parasitism. (Prerequisite: BIOL 271.)</td>
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<tr>
<td>BIOL 472</td>
<td>3</td>
<td>Fall</td>
<td>Communities and Ecosystems (3+0) n</td>
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<td>Structure of plant and animal communities and their organization. Sturcuring forces of competition, predation, herbivory, mutualisms, and the flow of energy and nutrients. Latitudinal gradients in species richness and biogeography. (Prerequisite: BIOL 271.)</td>
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<tr>
<td>BIOL 473</td>
<td>3</td>
<td>Fall</td>
<td>Limnology (2+3) n</td>
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<td>Physical, chemical and biological characteristics of fresh water, emphasizing ecological aspects important to fish and other organisms. Laboratory fee: $20.00. (Prerequisites: BIOL 271, CHEM 106X or permission of instructor.)</td>
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<tr>
<td>BIOL 474</td>
<td>4</td>
<td>Alternate Fall</td>
<td>Plant Ecology (3+3) n</td>
</tr>
<tr>
<td>BIOL 475</td>
<td>2</td>
<td>Alternate Fall</td>
<td>Plant Communities of Alaska-Field Course (1+3)</td>
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<td>Identification of vascular and non-vascular plants and the processes affecting the structure and evolution of Alaskan plant communities. Field trips to be made to plant communities of interior Alaska. Laboratory fee: $20.00. (Prerequisites: BIOL 239, permission of instructor. Next offered: 1991-92.)</td>
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<tr>
<td>BIOL 477</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Ecology of Streams and Rivers (3+0) n</td>
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<td>Physical, chemical, and especially biological aspects of stream and river ecosystems. Considerations of methods used in running water research and management of streams and rivers. (Prerequisites: BIOL 271 and 473 recommended or permission of instructor. Materials fee: $20.00. (Next offered: 1992-93.)</td>
</tr>
<tr>
<td>BIOL 478</td>
<td>2</td>
<td>Spring</td>
<td>Field Ecology (0.5+6) n</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>An intensive experience in the collection and interpretation of ecological data through concentrated study for 10-12 days in early May. Students engage in the design, execution, and analysis of field projects. Course grade is based on performance during field trip. Field trip fee to be announced. Laboratory fee: $20.00. (Prerequisites: BIOL 271, 471 or 472 may be taken concurrently), and permission of instructor.)</td>
</tr>
<tr>
<td>BIOL 479</td>
<td>2</td>
<td>Spring</td>
<td>Ornithology Field Trip (0.5+6) n</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Techniques of field ornithology, emphasizing identification of birds and bird-habitat relationships. Preparation during the spring semester followed by a field trip of 10-12 days in early May. Students must share in expenses. Field trip fee to be announced. Laboratory fee: $20.00. (Prerequisites: BIOL 426 may be taken concurrently and permission of instructor.)</td>
</tr>
<tr>
<td>BIOL 480</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Water Pollution Biology (3+0) n</td>
</tr>
</tbody>
</table>
**Business Administration**

Admittance to upper division School of Management courses, except BA 301, 311 and 331, is granted only to students with junior standing or above who have completed all required 100 and 200 level courses in Accounting, Business Administration, Economics and Mathematics. Any exceptions require approval of the BA department head.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 601</td>
<td>3</td>
<td>Radiotracer Techniques (2+3)</td>
<td>Alternate Spring</td>
</tr>
<tr>
<td>BIOL 602</td>
<td>3</td>
<td>Research Design (3+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>BIOL 611</td>
<td>3</td>
<td>Fish Physiology (3+0)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>BIOL 614</td>
<td>2</td>
<td>Grazing Ecology (2+0)</td>
<td>Alternate Spring (Same as WLF 614)</td>
</tr>
<tr>
<td>BIOL 618</td>
<td>2</td>
<td>Biogeography (2+0)</td>
<td>Alternate Spring</td>
</tr>
<tr>
<td>BIOL 619</td>
<td>2</td>
<td>Marine Mammals (1+3)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>BIOL 625</td>
<td>3</td>
<td>Physiological Ecology: Energetics and Nutrition (2+3)</td>
<td>Alternate Spring</td>
</tr>
<tr>
<td>BIOL 627</td>
<td>3</td>
<td>Chemical Ecology (3+0)</td>
<td>Alternate Spring</td>
</tr>
<tr>
<td>BIOL 629</td>
<td>3</td>
<td>Advanced Animal Behavior (3+0)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>BIOL 637</td>
<td>2</td>
<td>Modern Evolutionary Theory (2+0)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>BIOL 638</td>
<td>1</td>
<td>Seminar in Ecology and Evolutionary Biology (2+0)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>BIOL 649</td>
<td>3</td>
<td>Molecular Genetics (3+0)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>BIOL 650</td>
<td>3</td>
<td>Fish Ecology (2+3)</td>
<td>Fairbanks, Alternate Fall</td>
</tr>
<tr>
<td>BIOL 670</td>
<td>3</td>
<td>Ecological Genetics (2+3)</td>
<td>Juneau, As Demand Warrants</td>
</tr>
<tr>
<td>BIOL 672</td>
<td>3</td>
<td>Ecosystem Processes (2+0+2)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>BIOL 675</td>
<td>3</td>
<td>Plant Physiological Ecology (2+3)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>BIOL 677</td>
<td>3</td>
<td>Advanced Topics in Plant Ecology and Systematics (3+0)</td>
<td>Spring</td>
</tr>
<tr>
<td>BIOL 678</td>
<td>3</td>
<td>Tropical Ecology Field Course (0+3+Arr)</td>
<td>Alternate Spring</td>
</tr>
<tr>
<td>BIOL 680</td>
<td>4</td>
<td>Data Analysis in Biology (3+3)</td>
<td>(Same as STAT 680)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 151</td>
<td>3</td>
<td>Introduction to Business (3+0)</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>BA 160</td>
<td>3</td>
<td>Tourism Principles and Practices (3+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>BA 220</td>
<td>3</td>
<td>Basic Programming Languages (3+0)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>BA 253</td>
<td>1-3</td>
<td>Internship in Business (0+1-3)</td>
<td>Fall, Spring, Summer</td>
</tr>
<tr>
<td>BA 303</td>
<td>3</td>
<td>Advanced Leadership (3+1)</td>
<td>Fall (Same as MILS 303)</td>
</tr>
<tr>
<td>BA 307</td>
<td>3</td>
<td>Personnel Management (3+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>BA 317W</td>
<td>3</td>
<td>Employment Law (3+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>BA 325</td>
<td>3</td>
<td>Financial Management (3+0)</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>BA 326</td>
<td>3</td>
<td>Principles of Advertising (3+0)</td>
<td>Spring</td>
</tr>
<tr>
<td>BA 327</td>
<td>3</td>
<td>Collective Bargaining and Labor Relations (3+0)</td>
<td>Spring</td>
</tr>
<tr>
<td>BA 330</td>
<td>4</td>
<td>The Legal Environment of Business (4+0)</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>BA 331</td>
<td>3</td>
<td>The Legal Environment of Business (3+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>BA 332</td>
<td>3</td>
<td>Business Law (3+0)</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>BA 348</td>
<td>3</td>
<td>Principles of Marketing (3+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>BA 350</td>
<td>3</td>
<td>Introduction to Real Estate and Land Economics (3+0)</td>
<td>Fall</td>
</tr>
</tbody>
</table>

[FIGURE: COURSE DESCRIPTIONS—BUSINESS ADMINISTRATION / 123]
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 360</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Production/Operations Management (3+0) Production management field with an emphasis on the design and management of efficient manufacturing and operating systems including the process of converting, or manufacturing resources into goods, and activities associated with the production of goods and services. Topics include productivity and quality, product design and development, resource-requirements planning, facility and distribution issues, process technology, automation and job design, materials and inventory management, scheduling and production-activity control, project planning. Materials fee: $20.00. (Prerequisite: BA 307.)</td>
</tr>
<tr>
<td>BA 372</td>
<td>3</td>
<td>Spring</td>
<td>Hotel Administration (3+0) Practices and concepts for successful hotel operation in Alaska including but not limited to management systems, financing of hotels, budgeting and food costing, housekeeping, and front office management. (Prerequisite: BA 307.)</td>
</tr>
<tr>
<td>BA 375W</td>
<td>3</td>
<td>Fall</td>
<td>Marketing of Hospitality Service (3+0) Principles of marketing applied to service industries, advertising, promotion, public relations, and personal selling to achieve profitable public recognition and good will. (Prerequisite: BA 343.)</td>
</tr>
<tr>
<td>BA 377</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Food and Beverage Management (3+0) Development of a successful food and beverage system from its inception to operation. Menu planning, purchasing, preparation, service, and food beverage cost control. (Prerequisite: BA 307. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>BA 378</td>
<td>3</td>
<td>Fall</td>
<td>Passenger Transportation Management (3+0) Modern forms of passenger transportation with emphasis on carriers presently operating in Alaska and future development of transportation in Alaska.</td>
</tr>
<tr>
<td>BA 390</td>
<td>3</td>
<td>Fall</td>
<td>Organizational Theory and Behavior (3+0) Behavior of individuals and small groups within organizations, including motivation, leadership, communications, group dynamics, organizational development, and conflict management.</td>
</tr>
<tr>
<td>BA 418</td>
<td>3</td>
<td>Spring</td>
<td>Simulation Modeling for Decision Making (3+0) Concepts of computer simulation, probability distributions, modeling principles and the language STELLA from basics to modeling a reasonably complex operating system and making conclusions about the system. (Prerequisites: AJS 101 or equivalent, ECON 227, MATH 262, ACCT 102; BA 360 is recommended.)</td>
</tr>
<tr>
<td>BA 423</td>
<td>3</td>
<td>Fall</td>
<td>Investment Management (3+0) Investing in marketable securities for the individual. Determination of value, analysis of growth, technical analysis, and portfolio management. Materials fee: $10.00. (Prerequisite: BA 325 or equivalent.)</td>
</tr>
<tr>
<td>BA 425W</td>
<td>3</td>
<td>Spring</td>
<td>Advanced Corporate Financial Problems (3+0) Corporate financial problems, planning and controls, and major functions performed by corporate financial managers. (Prerequisite: BA 325.)</td>
</tr>
<tr>
<td>BA 430</td>
<td>3</td>
<td>Fall</td>
<td>Current Topics in Finance (3+0) An in-depth consideration of sophisticated and specialized applications of financial management principles. Topics are those most timely to the Alaskan economy. Materials fee: $20.00. (Prerequisite: BA 325.)</td>
</tr>
<tr>
<td>BA 436</td>
<td>3</td>
<td>Fall</td>
<td>Consumer Behavior (3+0) Communication in marketing, culture and its effects on product discrimination. Social class, personality, symbol and persuasion from the marketing manager's point of view. Organizational influences on corporate buyers and the impact of buyer behavior on the strategy and tactics of marketing management. (Prerequisites: BA 343, ECON 227, STAT 260.)</td>
</tr>
<tr>
<td>BA 441</td>
<td>3</td>
<td>Spring</td>
<td>Promotion Management (3+0) Advertising, publicity, sales management, sales promotion, and the interrelationships necessary for effective promotions. (Prerequisite: BA 343.)</td>
</tr>
<tr>
<td>BA 443</td>
<td>3</td>
<td>Spring</td>
<td>International Marketing (3+0) Comparisons of foreign markets with domestic markets. Market enlargement via direct export, direct investment, or joint ventures. Foreign pricing, communications, distribution, and advertising viewed in terms of marketing management and research. (Prerequisite: BA 343.)</td>
</tr>
<tr>
<td>BA 445W</td>
<td>3</td>
<td>Fall</td>
<td>Marketing Research (3+0) Basic processes and tools of marketing research with emphasis on utilization of research findings as an integral part of the managerial decision-making process. Technique of data-gathering and analysis to solve a marketing problem. (Prerequisites: BA 343, 436.)</td>
</tr>
<tr>
<td>BA 447</td>
<td>3</td>
<td>Spring</td>
<td>Compensation Management (3+0) Theory and practice of wage and salary, benefits and risk management. Planning, administration, auditing, adjusting and budgeting for compensation. (Prerequisite: BA 307, 327.)</td>
</tr>
<tr>
<td>BA 453</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Internship in Business Administration (0+var.) A supervised practical work experience to enable students to apply their coursework in a business environment. Admission dependent upon approved sponsorship arrangements. (Prerequisites: Senior standing and permission of instructor.)</td>
</tr>
<tr>
<td>BA 456W</td>
<td>3</td>
<td>Spring</td>
<td>Small Business Management (3+0) Operations and special problems of the small business with emphasis on both existing firms and new ventures. Starting new businesses, building and expanding existing concerns, going concerns, and franchise operations. (Prerequisites: Completion of all 300 level business administration, accounting and economics common body of knowledge requirements and senior standing in the School of Management.)</td>
</tr>
<tr>
<td>BA 457</td>
<td>3</td>
<td>Spring</td>
<td>Training and Management Development (3+0) Theory and practice of employee training programs, needs assessments, learning theories, instructional design, training techniques and evaluation, management development and career development techniques and practices. (Prerequisites: BA 307, 317.)</td>
</tr>
<tr>
<td>BA 460W</td>
<td>3</td>
<td>Fall</td>
<td>International Business (3+0) Relationships among nations with particular emphasis on the business, economic, and sociocultural institutions that influence the performance of managers. Formulation of objectives, strategies, and organizational structures within the context of international diversity. (Prerequisites: Senior standing and all 300 level requirements completed.)</td>
</tr>
<tr>
<td>BA 461</td>
<td>3</td>
<td>Spring</td>
<td>International Finance (3+0) Foreign investment projects including foreign capital markets, financing export, hedging foreign exchange risks, and capital budgeting in an international setting. (Prerequisite: BA 325.)</td>
</tr>
<tr>
<td>BA 462O</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Administrative Policy (3+0) An advanced case study course. Focuses on questions of organizational purpose and design through the eyes of the general manager. Marketing, management, and financial considerations are integrated with external influences to forge strategic planning and control. (Prerequisites: Completion of all 300 level business administration, accounting and economics common body of knowledge requirements and senior standing.)</td>
</tr>
<tr>
<td>BA 465</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Tourism Destination Planning and Development (3+0) Tourism resource characteristics, location, and market demand considerations. Analysis of development potential, planning processes and procedures, capital and personnel requirements, and tourism destination development. (Prerequisite: BA 307. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>BA 471</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Tourism Seminar (3+0) A senior seminar examining all areas of the travel-tourism industry. Lecturer, guest industry speakers, and the case study method are utilized. (Prerequisite: Instructor's permission and upper division standing. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>BA 475</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Transportation and Logistics (3+0) Transportation systems components, systems planning, multimode systems, interactions among components and between the transportation system and its environment. Special consideration is given to Alaskan transportation problems by experienced specialists. (Prerequisites: STAT 200, BA 343.)</td>
</tr>
</tbody>
</table>
### COURSE DESCRIPTIONS—CHEMISTRY / 125

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Type</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 100X</td>
<td>4</td>
<td>Spring</td>
<td>Chemistry and the Modern World (3+3) n Fundamentals of chemistry with an emphasis on the impact of chemistry and the chemical industry on society and the environment. May be used to fulfill part of the natural science requirement or as preparation for CHEM 105X. For non-science majors. Laboratory fee: $15.00. (Prerequisite: High school algebra.)</td>
</tr>
<tr>
<td>CHEM 104X</td>
<td>4</td>
<td>Spring</td>
<td>Beginning in Biochemistry: A Survey of Organic Chemistry and Biochemistry (3+3) n 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 105X. (Prerequisite: CHEM 103X or consent of instructor.)</td>
</tr>
<tr>
<td>CHEM 105X</td>
<td>4</td>
<td>Fall</td>
<td>Basic General Chemistry (3+3) n 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 105X. Laboratory fee: $15.00. (Prerequisite: CHEM 103X or consent of instructor.)</td>
</tr>
<tr>
<td>CHEM 106X</td>
<td>4</td>
<td>Fall</td>
<td>General Chemistry (3+3) n CHEM 105X-106X, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. CHEM 105X: Measurements, calculations, atomic and molecular structure, chemical reactions and related energy changes. CHEM 106X: Reaction kinetics, equilibrium (including acids and bases), nuclear chemistry, electrochemistry, chemistry of the elements and an introduction to organic and biochemistry. Laboratory fee: $25.00-$30.00. (Prerequisites: For CHEM 105X: high school algebra, high school chemistry or CHEM 103X, or consent of instructor. For CHEM 106X: CHEM 105X.)</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>3</td>
<td>Spring</td>
<td>Basic Inorganic Chemistry (3+3) n Inorganic chemical properties and reactions with special emphasis on the environment. Laboratory includes synthesis, characterization and analysis. Laboratory fee: $15.00. (Prerequisite: CHEM 106X or permission of instructor.)</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>3</td>
<td>Fall</td>
<td>Chemical Equilibrium and Analysis (3+0) n Aqueous chemical equilibrium as applied to chemical analysis, separations, spectrophotometry, potentiometry, and factors considered in the analytical approach. (Prerequisites: CHEM 106X; MATH 107 or equivalent.)</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>3</td>
<td>Fall</td>
<td>Organic Chemistry (3+0) n A systematic study of the more important classes of carbon compounds, reactions of their functional groups, methods of synthesis, reactions, and uses. (Prerequisite: CHEM 106X for CHEM 321; CHEM 321 for CHEM 322.)</td>
</tr>
<tr>
<td>CHEM 324</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Physical Chemistry (3+0) n CHEM 321: Principles of thermodynamics with applications to phase equilibrium, solutions, chemical equilibrium and electrochemistry. CHEM 322: Kinetic theory of gases, chemical kinetics, atomic and molecular structure, and spectroscopy. (Prerequisites: CHEM 106X, MATH 202, PHYS 104 or 212 or permission of the instructor; CHEM 331 for CHEM 332.)</td>
</tr>
<tr>
<td>CHEM 402</td>
<td>3</td>
<td>Spring</td>
<td>Inorganic Chemistry (3+0) n Application of physical chemistry to the study of the elements and their compounds. Bonding, periodic properties and coordination chemistry. (Prerequisite or corequisite: CHEM 332.)</td>
</tr>
<tr>
<td>CHEM 412</td>
<td>3</td>
<td>Fall</td>
<td>Instrumental Analytical Methods (3+0) n Theory, capabilities and limitations of instruments used in chemical analysis. Subjects include chromatography, mass spectrometry, potentiometry, optical spectroscopy, and nuclear magnetic resonance. (Prerequisites: CHEM 212 and 213; Corequisite: CHEM 332.)</td>
</tr>
<tr>
<td>CHEM 413</td>
<td>3</td>
<td>Spring</td>
<td>Analytical Instrumental Laboratory (1+0) n Quantitative instrumental measurements with atomic and molecular absorption spectrometry, gas and liquid chromatography and spectrometry. Laboratory fee: $15.00. (Prerequisites: CHEM 212, 331, 412.)</td>
</tr>
<tr>
<td>CHEM 434</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Physical Instrumental Laboratory (1+6) n Quantitative instrumental measurements: calorimetry, conductance, polarimetry; IR, NMR, x-ray, and Raman spectroscopy. Laboratory fee: $15.00. (Corequisite: CHEM 332.)</td>
</tr>
<tr>
<td>CHEM 445</td>
<td>4</td>
<td>Fall</td>
<td>Molecular Evolution (3+3) (Same as BIOL 445) The study of structure, function and evolution of hereditary molecules (nucleic acids). (Prerequisite: BIOL 302.)</td>
</tr>
<tr>
<td>CHEM 451</td>
<td>3</td>
<td>General Biochemistry (3+0) n Chemistry of biomolecules with emphasis on the bioenergetics and control of metabolic pathways via regulation of specific enzymes. (Prerequisites: CHEM 322; CHEM 331 recommended or permission of the instructor.)</td>
<td></td>
</tr>
<tr>
<td>CHEM 452</td>
<td>3</td>
<td>Spring</td>
<td>Biochemistry Laboratory (1+6) n Experimental manipulation and observation of enzymes, proteins, and nucleic acids, using chromatographic, spectroscopic, electrophoretic, and other techniques. Laboratory fee: $15.00 (Prerequisite: CHEM 324 and 453.)</td>
</tr>
</tbody>
</table>
CHEM 602 3 Credits
Advanced Inorganic Chemistry (3+0) Alternate Fall
CHEM 606 3 Credits
Atmospheric Chemistry (3+0) Alternate Fall
CHEM 612 3 Credits
Advanced Analytical Chemistry (3+0) Alternate Fall
CHEM 621 3 Credits
Enzymology and Bio-Organic Chemistry (3+0) Alternate Fall
CHEM 622 3 Credits
Advanced Organic Chemistry II (3+0) Alternate Fall
CHEM 631 3 Credits
Advanced Physical Chemistry (3+0) Alternate Spring
CHEM 632 3 Credits
Molecular Spectroscopy (3+0) Alternate Spring
CHEM 652 3 Credits
Advanced Biochemistry (3+0) Alternate Spring
CHEM 653 3 Credits
Prokaryotic Molecular Biology (3+0) Alternate Spring
CHEM 654 3 Credits
Protein Structure and Function (3+0) Alternate Fall
CHEM 660 3 Credits
Chemical Oceanography (3+0) (Same as MSL 660) Spring
CHEM 662 3 Credits
Biochemical and Molecular Biology Research Techniques (0+3) Alternate Spring
CHEM 673 3 Credits
Bioenergetics (3+0) Alternate Spring
CHEM 688 0-1 Credits
Biochemical and Molecular Biology Seminar (1+0) Alternate Fall

Chinese

For information on studying in China, see Study Abroad.

CHNS 101 3 Credits
Fall
CHNS 102 3 Credits
Spring
Elementary Chinese I and II (3+0) 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, exploration of the cultural dimension, implicitly through language and explicitly through texts and audio-visual materials. (Prerequisite: For CHNS 102, CHNS 101.)
CHNS 201 3 Credits
Fall
CHNS 202 3 Credits
Spring
Intermediate Chinese I and II (3+0) Continuation of CHNS 102. Increasing emphasis on reading ability and cultural material. Conducted in Chinese. (Prerequisite: For CHNS 201, CHNS 102 or equivalent; For CHNS 202, CHNS 101.)

Civil Engineering

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

CE 112 3 Credits
Spring
Elementary Surveying (2+3) Basic plane surveying: use of transit, level, theodolite, and total station. Traverses, public land system, circular curves, cross-sectioning and earthwork. (Prerequisite: MATH 108.)
CE 326 4 Credits
Fall, Spring
Introduction to Geotechnical Engineering (3+3) Fundamentals of geotechnical engineering including soil mechanics and foundation engineering. Identification and classification of soil, physical and mechanical properties of soil, subsurface exploration and laboratory testing techniques, seepage, compaction, bearing capacity, slope stability, deep and shallow foundation design, retaining structure design, frozen ground consideration. (Prerequisites: ES 331, 341; CE 334 or permission of the instructor.)
CE 334 3 Credits
Fall
CE 344 3 Credits
Fall
Water Resources Engineering (3+0) Fundamentals of engineering hydrology and hydraulic engineering. Precipitation, runoff, statistical methods, flood control, open channels, and groundwater. Materials fee: $10.00. (Prerequisite: ES 341.)
CE 400 0 Credits
Fall, Spring
EIT Exam Complete the EIT application and take the State of Alaska Engineering-In-Training Exam in the same semester of course registration. (Prerequisite: Senior standing in civil engineering.)
CE 402 3 Credits
Fall
Introduction to Transportation Engineering (3+0) Transportation systems, planning, design parameters, demand and mode specific consideration. Laboratory fee: $10.00. (Prerequisite: CE junior standing or permission of instructor.)
CE 403 3 Credits
Spring
Traffic Engineering (2+3) Analysis and design of highways, streets and intersections for traffic consideration. (Prerequisite: CE 402.)
CE 404 3 Credits
Spring
Highway Engineering (2+3) Engineering considerations for highway design including vertical and horizontal alignment, cross sections, drainage, pavements, earthworks, signs and markings, intersection and interchange. (Prerequisite: CE 402.)
CE 412 3 Credits
Alternate Spring
Elements of Photogrammetry (2+3) Aerial and terrestrial photography as applied to surveying and mapping. Flight planning and ground control. Analytical study of photogrammetry and computerized photogrammetry. (Prerequisites: Permission of the instructor. Next offered: 1991-92.)
CE 415 3 Credits
Fall
Advanced Surveying (2+3) Azimuth by astronomical methods. Route surveying, including horizontal and vertical curves, spirals, cross-sectioning, and earthwork. Reduction of electronic distance measurements. Alaska State Plane Coordinate System, both old (NAD27) and new (NAD83). (Prerequisite: CE 112.)
CE 416 1 Credit
Spring
Boundary Surveying (1+0) Surveying problems related to land subdivision with emphasis on the legal aspects. Metes and bounds descriptions and platted subdivisions. (Prerequisite: CE 112 or permission of instructor.)
CE 422 3 Credits
Spring
Foundation Engineering (3+0) Bearing capacity of soils and effects of settlements on structure. Design of footings and rafts, pile and pier foundations, retaining walls and anchored bulkheads. Foundations on frozen soils, and construction problems in foundation engineering. (Prerequisites: CE 326, ES 301.)
CE 423 3 Credits
Fall
Advanced Soil Mechanics (2+3) Soil formation, identification and classification, physical and mechanical properties of soil, seepage, drainage and frost action, subsoil investigation, bearing capacity of soils, and lateral earth pressures and stability of slopes. Laboratory fee: $10.00. (Prerequisites: CE 326, ES 301.)
CE 431 3 Credits
Spring
Structural Engineering I (2+3) Analysis of statically determinate and indeterminate structures to include: beams, trusses and frames, internal force resultant, 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: CE 334, ES 331.)
CE 432 3 Credits
Fall
Structural Engineering II (2+3) Concepts of analysis/design using advanced methods of structural analysis and computer techniques. Effects of material behavior and modes of failure (bending, shear, connections) on design decisions examined. (Prerequisite: CE 431.)
### COURSE DESCRIPTIONS—COMMUNITY HEALTH AIDE/PRACTITIONER / 127

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 433</td>
<td>3</td>
<td>Fall</td>
<td>Reinforced Concrete Design (2+3) Design philosophies and current practice. Short and long columns, beam-columns, flexural members, to include: rectangular and T-beams, one and two-way slabs. Footings. Crack control, anchorage, development lengths and deflections. Introduction to complete structural systems. Current ACI specifications used. (Prerequisite: CE 431.)</td>
</tr>
<tr>
<td>CE 434</td>
<td>3</td>
<td>Spring</td>
<td>Timber Design (2+3) Essentials of structural design. Design of basic components of solid and laminated timber. connections, arches, pole framing, diaphragms, stressed skin construction, and timber shells. (Prerequisites: ES 331 and CE 431.)</td>
</tr>
<tr>
<td>CE 436</td>
<td>3</td>
<td>Spring</td>
<td>Structural Steel Design (2+3) Design philosophies and current practice. Columns, tension members, laterally supported and unsupported beams and beam-columns. Local and global instabilities. Welded and bolted connections. Introduction to complete structural systems. Current AISC specifications used. (Prerequisite: CE 431.)</td>
</tr>
<tr>
<td>CE 438</td>
<td>3</td>
<td>Spring</td>
<td>Design of Engineered Systems (3+0) System design principles for large-scale constructed facilities. Application of ethics, liability and legal principles to professional practice. Emphasis on teamwork and leadership. (Prerequisite: Last year of civil engineering B.S. program.)</td>
</tr>
<tr>
<td>CE 441</td>
<td>4</td>
<td>Spring</td>
<td>Environmental Engineering (3+3) Fundamentals of environmental engineering including theory and application of water and wastewater engineering practice. Conservation, quality, treatment, and distribution of water supply. Wastewater characteristics, collection, treatment, and disposal. Solid waste management and air pollution control. Laboratory fee: $10.00. (Prerequisite: ES 341 or permission of instructor.)</td>
</tr>
<tr>
<td>CE 442</td>
<td>3</td>
<td>Fall</td>
<td>Environmental Engineering II (3+0) Advanced topics involving environmental law and health, air pollution, solid waste management, toxic and hazardous wastes, animal waste management, noise pollution, water quality modeling, wastewater collection systems, chemical/physical processes, theory of sedimentation, disinfection, biological processes, onsite treatment, sludge management, advanced waste treatment and other. (Prerequisites: CE 441 and junior standing in civil engineering.)</td>
</tr>
<tr>
<td>CE 445</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Engineering Hydrology (2+3) Design and analysis; extended coverage of hydrologic concepts from CE 344. Precipitation, evaporation analysis, groundwater hydrology, runoff analysis and prediction; statistical hydrology; application of simulation models. (Prerequisite: CE 344. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>CE 470</td>
<td>1</td>
<td>Fall</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>CE 603</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Arctic Engineering (3+0)</td>
</tr>
<tr>
<td>CE 605</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Pavement Design (3+0)</td>
</tr>
<tr>
<td>CE 617</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Control Surveys (3+0)</td>
</tr>
<tr>
<td>CE 620</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Civil Engineering Construction (3+0)</td>
</tr>
<tr>
<td>CE 622</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Foundations and Retaining Structures (3+0)</td>
</tr>
<tr>
<td>CE 623</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Soil Stabilization (3+0)</td>
</tr>
<tr>
<td>CE 626</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Applications in Geotechnical Engineering (3+0)</td>
</tr>
<tr>
<td>CE 627</td>
<td>3</td>
<td>Spring</td>
<td>Earthquake Engineering I (3+0)</td>
</tr>
<tr>
<td>CE 631</td>
<td>3</td>
<td>Fall</td>
<td>Advanced Structural Analysis (3+0)</td>
</tr>
<tr>
<td>CE 632</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Advanced Structural Design (3+0)</td>
</tr>
<tr>
<td>CE 637</td>
<td>3</td>
<td>Fall</td>
<td>Earthquake Engineering II (3+0)</td>
</tr>
<tr>
<td>CE 661</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Advanced Water Resources Engineering (3+0)</td>
</tr>
<tr>
<td>CE 662</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Open Channel and River Engineering (3+0)</td>
</tr>
<tr>
<td>CE 663</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Groundwater Dynamics (3+0)</td>
</tr>
<tr>
<td>CE 676</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Coastal Engineering (3+0)</td>
</tr>
<tr>
<td>CE 681</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Frozen Ground Engineering (3+0)</td>
</tr>
<tr>
<td>CE 682</td>
<td>3</td>
<td>Alternate Years</td>
<td>Ice Engineering (3+0)</td>
</tr>
<tr>
<td>CE 683</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Arctic Hydrology and Hydraulic Engineering (3+0)</td>
</tr>
<tr>
<td>CE 684</td>
<td>3</td>
<td>Arctic Years</td>
<td>Arctic Utility Distribution (3+0)</td>
</tr>
<tr>
<td>CE 685</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Topics in Frozen Ground Engineering (3+0)</td>
</tr>
</tbody>
</table>

### College Student Personnel Administration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSP 651</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Current Issues in Student Personnel Administration (3+0)</td>
</tr>
<tr>
<td>CSP 655</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Practicum in Student Personnel Administration (1+6)</td>
</tr>
<tr>
<td>CSP 665</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Practicum in Counseling: Higher Education/Agency (0+9) (Same as COUN 665.)</td>
</tr>
</tbody>
</table>

### Community Health Aide/PRACTITIONER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHP 082</td>
<td>2</td>
<td>As Demand Warrants</td>
<td>Community Health Aide Pre-session I Assists the newly employed Community Health Aide to function in the village clinic until he/she enters Session I. Patient evaluation, use of the manual, reporting patients, medicines and lab tests. Emergency care is included if students have not had emergency trauma training. (Prerequisite: Employment by the health corporation as a community health aide or permission of instructor.)</td>
</tr>
<tr>
<td>CHP 108</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Nurse Aide/Patient Care Assistant Training Basic skills necessary to assist nurses and to be efficient health care team members. Supervised work in conjunction with health care professionals in hospitals and agencies appropriate for these experiences. (Prerequisite: High school diploma or permission of instructor.)</td>
</tr>
<tr>
<td>CHP 120</td>
<td>4</td>
<td>As Demand Warrants</td>
<td>Community Health Aide, Session I Focus on beginning body of knowledge and skills designed for the CHA to function in the village clinic under the medical supervision of a physician at the regional hospital. Topics emphasized include anatomy, disease concepts, patient evaluation, patient education and treatment plan, use of the manual, M.D. referral, medicines, medical emergencies, common medical problems, prenatal care, immunizations and clinic management and health administration. Introductory courses are taught in pediatrics, communicable diseases, health surveillance and promotion, mental health and substance abuse. Lab skills and clinical training time are scheduled fifty percent of the time. (Prerequisite: Employment by the health corporation as a CHA or permission of the instructor.)</td>
</tr>
</tbody>
</table>
CHP 121  4 Credits  As Demand Warrants
Community Health Aide, Session II
Session II material is reviewed and reinforced, especially patient evaluation
skills and emergency care. Focus on prevention, especially the
child-bearing cycle, prenatal care, family planning, gynecology/obstetrics,
well-child care, and adolescence. Topics of pediatric problems, cardiovascular problems, nutrition, health education,
health surveillance and promotion, environmental health, dental
health, and mental health are included. Upon completion, the
CHA is prepared to conduct basic prenatal and well-child exams, recognize
and manage most common minor problems seen in these areas and
make appropriate referrals as necessary. Lab skills and clinical training
are scheduled fifty percent of the time. (Prerequisite: CHP 120.)

CHP 122  4 Credits  As Demand Warrants
Community Health Aide, Session III
Session III material is reviewed and reinforced, especially patient evaluation
lab skills and emergency care. Focus on prevention, especially the
child-bearing cycle, prenatal care, family planning, gynecology/obstetrics,
well-child care, and adolescence. Topics of pediatric problems, cardiovascular problems, nutrition, health education,
health surveillance and promotion, environmental health, dental
health, and mental health are included. Upon completion, the
CHA is prepared to conduct basic prenatal and well-child exams, recognize
and manage most common minor problems seen in these areas and
make appropriate referrals as necessary. Lab skills and clinical training
are scheduled fifty percent of the time. (Prerequisite: CHP 121.)

CHP 123  14 Credits  As Demand Warrants
Community Health Aide Field Experience
Students work on-the-job in a village clinic to practice and develop the
skills learned in Sessions I, II and III. During this time the community
CHA consults with a referral physician on a daily basis. Additionally,
a variety of health professionals make field trips to the village
to provide health care with the CHA. Learning contracts from Sessions
I, II and III and the evaluation of CHA skills are also accomplished
during the CHA Field Experience. A minimum of 600 hours of village
patient care is required. (Prerequisite: CHP 122.)

CHP 124  2 Credits  As Demand Warrants
Community Health Aide Preceptorship
Students practice direct patient care, including history taking,
physical exam, patient assessment and patient plan. Students receive
50 hours of experience in acute care, emergency care, prenatal care,
well-child care, and chronic patient follow-up working with a
mid-level practitioner or an M.D. Additional experiences
are scheduled with the referral center departments, including pharmacy,
lab, supply, eye care, social services, mental health, public health
nursing, maternal and child health, etc. (Prerequisite: CHP 122.)

CHP 202  1-3 Credits  As Demand Warrants
Emergency Care for Community Health Practitioners
Covers methods of evaluation and response to a variety of emergency
situations that may arise in the village setting. Skills taught include
emergency assessment and treatment, administration of intravenous
fluids, application of splints, bandages and transportation of the
injured. (Prerequisite: CHP 120.)

CHP 203  1-3 Credits  As Demand Warrants
Clinical Update for Community Health Practitioners
Review, update and reinforcement of knowledge and skills taught in
CHP 120, 121 and 122. 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. (Prerequisite: CHP 120.)

CHP 204  1-3 Credits  As Demand Warrants
Mental Health and Substance Abuse
Instruction in listening, drug therapy and family dynamics for
crisis intervention, long-term care in the area of mental health, and
substance abuse. Other topics include the mentally ill patient, the
substance abuser, the co-dependent, and prevention activities for the
village. (Prerequisite: CHP 120.)

CHP 207  1-3 Credits  As Demand Warrants
Pediatrics and Maternal Health
Review of the anatomy of the reproductive system, family planning,
infant care, adolescent care, prenatal care, prenatal education,
emergency post-partum care and management for mother and baby.
Well-child evaluations and immunizations. (Prerequisite: CHP 120.)

CHP 208  1-3 Credits  As Demand Warrants
Communicable Diseases
Expands concepts of CHP 112 in relation to diagnosis, management and
prevention of sexually transmitted diseases. Topics taught include menatal
and female genetalia exam, pelvic exam, pap smear, gonorrhea culture and
colonization, and venereal disease and patient education are emphasized.
(Prerequisite: CHP 120.)

CHP 211  1-3 Credits  As Demand Warrants
Health Education
Methods and philosophy of health education, use and sources of audio-
visual 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
permits CHPs to practice their health education knowledge and skills.
(Prerequisite: CHP 120.)

Computer Applications

CAPS 100  1 Credit  As Demand Warrants
Introduction to Personal Computers (1+0)
Overview of the three most popular uses of the personal computer:
word processing, data base management and electronic spreadsheets.
Provides a basic understanding of how the computer works and how it
can aid the student at school and work. Materials fee: $10.00.

CAPS 102  3 Credits  As Demand Warrants
Programming in BASIC (3+0)
Training and practice in writing programs in BASIC language for
business data processing applications using microcomputers. Emphasis
on problem solving, analysis, flowcharting, testing and debugging and
documentation. Recommended as a first programming language for
non-majors. (Prerequisite: MATH 107 or 105 or equivalent.)

CAPS 103  1-3 Credits  As Demand Warrants
Computer Survey (1+0 to 3+0)
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.

CAPS 104  3 Credits  As Demand Warrants
Introduction to Computer Programming (3+0)
Introduction to programming concepts and software design.
(Prerequisite: Ninth grade reading and comprehension level.)

CAPS 105  3 Credits  As Demand Warrants
Programming in FORTRAN (3+0)
Training and practice in writing programs in FORTRAN. Emphasis
on problem solving through analysis, flowcharting, testing and debugging
and documentation. (Prerequisite: MATH 107 or equivalent.)

CAPS 106  3 Credits  As Demand Warrants
BASIC Programming (3+0)
Training and practice in writing programs in the BASIC language
for business data processing applications using microcomputers. Emphasis
on problem solving with a computer. (Equivalent to CAPS 102.)

CAPS 107  3 Credits  As Demand Warrants
Computer Programming in PASCAL (3+0)
Fundamental structure of the computer language PASCAL (up to
data types of single dimension arrays). Preparation of elementary computer
programs on the University VAX/NMS in PASCAL. (Prerequisite: One
computer programming course or equivalent.)

CAPS 108  3 Credits  As Demand Warrants
Microcomputer as Learning Tool (3+0)
Concentration on word processing and other software to facilitate
education. Telesystems as an important part of course. Materials
fee: $10.00-$15.00. (Prerequisite: Typing skill required.)

CAPS 110  2 Credits  As Demand Warrants
Computer Software for Beginners (2+0)
Overview of computer hardware and software. Demonstrations and
hands-on experience with telecommunications, word-processing,
sheets, data base management and tutorial software.

CAPS 120  2 Credits  As Demand Warrants
Introduction to LOGO (2+0)
Programming in LOGO. Topics include recursion, interactive graphics,
primitives, procedures, managing work space, filling, debugging and
ingesting commands.

CAPS 122  1-2 Credits  As Demand Warrants
Computer Software Application (1+0 to 2+0)
Extensive coverage of a specific microcomputer application.

CAPS 124  1 Credit  As Demand Warrants
Apple Workshop (1+0)
Training and practice in using APPLEWORKS on an apple lfe covers
word processing, electronic spreadsheet and data base capabilities.
Materials fee: $10.00-$15.00.
**Computer Science**

**CS 130** 3 Credits  
Introduction to BASIC Programming (3+0)  
Arithmetic, logic, graphics, and file statements of Applesoft BASIC.  
Materials fee: $15.00-15.00.

**CS 135** 3 Credit  
Introduction to LOTUS 1-2-3 (3+0)  
In-depth presentation of spreadsheet concepts using the four major parts of "LOTUS 1-2-3" - worksheets, graphics, databases and macros.  
Materials fee: $10.00.

**CS 140** 3 Credits  
Introduction to PASCAL (3+0)  
Programming in PASCAL using Apple microcomputers with UCSD PASCAL.

**CS 145** 1 Credit  
Introduction to MULTIMATE (1+0)  
Preparation and revision of standard or customized business correspondence and reports using a contemporary, versatile word processor.  
Use of various software to enter text for a document, revise the text once it has been entered and print the text in a professional form.

**CS 150** 3 Credits  
Computer Business Applications (3+0)  
Using microcomputers in a business. Includes word processing, spreadsheets, data bases, graphics, project management and telecommunications. Use of each application in a business environment will be shown. Previous experience necessary. Materials fee: $10.00.

**CS 160** 1 Credit  
Introduction to Word Processing (1+0)  
Use of various software to enter text for a document, revise the text once it has been entered and print the document in a professional form.

**CS 161** 2 Credits  
Introduction to Microcomputers at Home (2+0)  
Overview of home computers, uses, operations and programs for typical consumer. Does not satisfy certificate or degree requirements.

**CS 182** 2 Credits  
Introduction to Microcomputers in Small Businesses (2+0)  
Microcomputers used in small business or professional practice by owners or employees. Overview of computers, uses and means of evaluation when purchasing equipment. Does not satisfy certificate or degree requirements.

**CS 200** 2 Credits (2+0)  
Programming in Assembly Language (2+0)  
Programming the 6502 (Apple) computer in ASSEMBLY and MACHINE language. Topics included are assembly coding, registers, stacks, indirect and indexed addressing, logic and arithmetic operations, binary and hexadecimal code.

**CS 220** 2 Credits  
Microcomputer Graphics (2+0)  
Practical techniques for generating computer graphics on the Apple. (Prerequisite: BASIC programming experience and Math 070 or equivalent Algebra II.)

**CS 221** 1-3 Credits  
Microcomputer Accounting (1-3+0)  
(Same as ABUS 221)  
Computer concepts for accounting transactions. Software packages, microcomputer systems and hardware, computer terminology, system analysis, and actual computer operations in accounting.

**CAPS 260** 1 Credit  
Advanced Word Processing (1+0)  
Advanced concepts of word processing using various software. (Prerequisite: Keyboard speed of 45 wpm.)

**Computer Science**

**CS 201** 3 Credits  
Computers and Society (3+0)  
Computer literacy for everyone. Overview of computing machines and automatic data processing. Interaction between social institutions and automated decision making. Same programming or understanding not for skill development. (Prerequisite: Two years of high school mathematics, including at least one year of algebra.)

**CS 203** 3 Credits  
Introduction to Computer Programming (2+3)  
Programming for non-majors and for those computer science students without the background for CS 201. Concepts of structured programming and algorithm design within the syntax of the PASCAL programming language. (Prerequisite: One year of high school algebra.)

**CS 205** 3 Credits  
Programming in C (3+0)  
The C programming language for students with some experience in other programming languages such as PASCAL or FORTRAN. (Prerequisite: One year high school programming, CS 103, 101, or ES 201.)

**CS 271** 3 Credits  
Scientific Programming in FORTRAN (3+0)  
Syntax and principles of FORTRAN. Applications to problems in science and engineering including the solution of linear and non-linear equations, interpolation, numerical integration, and numerical methods. The use of mathematical subroutine libraries. (Prerequisite: One semester of calculus and previous programming experience or consent of instructor.)

**CS 281** 3 Credits  
Computer Graphics (3+0)  
Study of applications, design of graphics software, survey of input and output devices, two and three-dimensional geometric transformations, matrices, and surfaces. (Prerequisite: CS 201, MATH 200, 210.)

**CS 301** 3 Credits  
Assembly Language Programming (3+0)  
Organization of computer registers, I/O, and control. Digital representation of data, Symbolic coding, instructions, addressing modes, program segmentation, linkage, macros, and subroutines. (Prerequisite: CS 201.)

**CS 302** 3 Credits  
Systems Programming (3+0)  
Advanced assembly language programming including privileged instructions and system services. Applications to asynchronous I/O, process control and communication, device drivers and file management. (Prerequisite: CS 301. Next offered: 1991-92.)

**CS 311** 3 Credits  
Data Structures and Algorithms (3+0)  
Data structures and the algorithms for their manipulation. Arrays, tables, stacks, queues, trees, linked lists, sorting, searching, and hashing. (Prerequisite: CS 202.)

**CS 321** 3 Credits  
Operating Systems (3+0)  
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. (Prerequisite: CS 301.)

**CS 331** 3 Credits  
Programming Languages (3+0)  
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, FORTRAN, and APL. (Prerequisite: CS 311.)

**CS 381** 3 Credits  
Advanced Computer Graphics (3+0)  
Graphics hardware, display programming, transformations, hidden line and surface elimination, approximation techniques for curve and surface representation. (Prerequisite: CS 281 and MATH 314. Next offered: 1992-93.)

**CS 401** 3 Credits  
Software Engineering (3+0)  
Software design as an engineering discipline. Project planning, proposal writing, and management. Program design, verification, and documentation. Additional topics include project management, real time design, and validation. (Prerequisites: CS 311, 321. Next offered: 1991-92.)

**CS 4202** 3 Credits  
Senior Project and Professional Practice (3+0)  
Students work on group projects in a simulated computer industry environment and produce appropriate documentation and reports. Nature, ethics, and legal considerations of the computer science profession discussed. Additional topics include project management, design methodology, technical presentation, human-computer interface and programming team interactions. (Prerequisites: CS 311, 321 and senior standing.)
<table>
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<tr>
<td>CS 405</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Introduction to Expert Systems (3+0) Problem selection, knowledge acquisition, representation, and programming, expert system shells, and validation and evaluation of expert systems. Case study of existing expert systems. Individual projects. Materials fee: $10.00. (Prerequisite: CS 311 or permission of the instructor. Next offered 1992-93.)</td>
</tr>
<tr>
<td>CS 411</td>
<td>3</td>
<td>Spring</td>
<td>Analysis of Algorithms (3+0) Analysis of classic algorithms, their implementation, and efficiency. Topics from combinatorics (sets, graphs, bit vectors), algebra (integer arithmetic, primes, polynomial arithmetic, GCD). Diophantine equations, systems (solving, searching, sorting), and theory (recursion, Turing machines). (Prerequisites: MATH 307, CS 311.)</td>
</tr>
<tr>
<td>CS 421</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Operating System Implementation (3+0) Detail level study of operating system functions and associated implementation with the aid of C language source code for a version of UNIX. Operating system tuning methods and security. Multiprocessor and other advanced operating system concepts. Programming and evaluation of operating system segments as projects. (Prerequisite: CS 321.)</td>
</tr>
<tr>
<td>CS 425</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Data Base Systems (3+0) Data independence, relationships, and organization. Hierarchical, network, and relational data models; canonical schema. Data description languages, query facilities, relational calculus. File organization and security, index organization, data integrity and reliability. (Prerequisites: CS 311, 321. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>CS 431</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Programming Language Implementation (3+0) 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. (Prerequisite: CS 331. Next offered: Spring 1992.)</td>
</tr>
<tr>
<td>CS 444</td>
<td>3</td>
<td>Alternate Fall</td>
<td>System Architecture (3+0) Hardware, operating systems and their interaction. I/O, interrupts, memory management, concurrent processing, deadlock, modularity, system balancing, scheduling, protection, introduction to communications, and networks. (Prerequisites: EE 342, CS 321. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>CS 451</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Automata and Formal Languages (3+0) Finite automata, regular languages, finite transducers, context free language, push down automata, parsing algorithms, deterministic context free languages, recursive and recursively enumerable languages, decision procedures, and undecidability. (Prerequisites: MATH 307, CS 201. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>CS 490</td>
<td>1-3</td>
<td>As Demand Warrants</td>
<td>Student Internship Students work on computer science project under the joint direction of a faculty member and participating industry or governmental agency. (Prerequisite: Acceptance in internship program.)</td>
</tr>
<tr>
<td>CS 605</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Artificial Intelligence (3+0)</td>
</tr>
<tr>
<td>CS 611</td>
<td>3</td>
<td>Fall</td>
<td>Complexity of Algorithms (3+0)</td>
</tr>
<tr>
<td>CS 621</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Advanced Systems Programming (3+0)</td>
</tr>
<tr>
<td>CS 622</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Performance Evaluation (3+0)</td>
</tr>
<tr>
<td>CS 631</td>
<td>3</td>
<td>Fall</td>
<td>Programming Language Implementation (3+0)</td>
</tr>
<tr>
<td>CS 641</td>
<td>3</td>
<td>Spring</td>
<td>Advanced Systems Architecture (3+0)</td>
</tr>
<tr>
<td>CS 642</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Distributed Processing (3+0)</td>
</tr>
<tr>
<td>CS 651</td>
<td>3</td>
<td>Spring</td>
<td>The Theory of Computation (3+0)</td>
</tr>
<tr>
<td>CS 661</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Optimization (3+0) (Same as MATH 661)</td>
</tr>
<tr>
<td>CS 662</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Mathematical Software (3+0)</td>
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<tr>
<td>CS 681</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Topics in Computer Graphics (3+0)</td>
</tr>
<tr>
<td>CS 690</td>
<td>3</td>
<td>Fall</td>
<td></td>
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<tr>
<td>CS 691</td>
<td>3</td>
<td>Spring</td>
<td>Graduate Seminar and Project (3+0)</td>
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**Counseling**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>COUN 610</td>
<td>1</td>
<td>Yearly</td>
<td>Culture and the Counselor (1+0)</td>
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<tr>
<td>COUN 611</td>
<td>1</td>
<td>Yearly</td>
<td>Theory Building for Counselors (1+0)</td>
</tr>
<tr>
<td>COUN 613</td>
<td>3</td>
<td>Spring</td>
<td>Foundations of Guidance and Counseling (3+0)</td>
</tr>
<tr>
<td>COUN 623</td>
<td>3</td>
<td>Summer</td>
<td>Counseling Theories and Applications (3+0) (Same as PSY 660)</td>
</tr>
<tr>
<td>COUN 628</td>
<td>3</td>
<td>Fall</td>
<td>Child and Adolescent Psychology (3+0)</td>
</tr>
<tr>
<td>COUN 629</td>
<td>3</td>
<td>Yearly</td>
<td>Developmentally Appropriate Interventions (3+0)</td>
</tr>
<tr>
<td>COUN 634</td>
<td>3</td>
<td>Fall</td>
<td>Practicum in Individual Counseling (2+7)</td>
</tr>
<tr>
<td>COUN 636</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Practicum in School Counseling (2+7)</td>
</tr>
<tr>
<td>COUN 646</td>
<td>3</td>
<td>Spring</td>
<td>Professional Ethics (3+0)</td>
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<tr>
<td>COUN 660</td>
<td>3</td>
<td>Spring</td>
<td>Cross-Cultural Counseling (3+0) (Same as PST 661)</td>
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<tr>
<td>COUN 665</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Practicum in Counseling: Higher Education/Agency (0+9) (Same as CSP 665)</td>
</tr>
<tr>
<td>COUN 674</td>
<td>3</td>
<td>Spring</td>
<td>Group Counseling (3+0) (Same as PST 674)</td>
</tr>
<tr>
<td>COUN 690</td>
<td>1</td>
<td>Fall, Spring</td>
<td>Internship (0+3)</td>
</tr>
</tbody>
</table>
Cross Cultural Communication

CCH 104  3 Credits  Fall, Spring
University Communications (3+0)
(Same as DEV 104)
Introduces communication skills characteristic of university contexts e.g., taking notes from lectures) and to address cultural differences between rural students and the university community. Link with selected lecture course. (Prerequisite: Referral from Rural Student Services.)

CCH 105  3 Credits  Fall, Spring
Intensive Reading Development (3+0)
(Same as DEV 105)
Develops and refines vocabulary, comprehension, and critical reading at the college level. Appropriate strategies for reading a variety of texts and composing essays in relation to them. (Prerequisite: Referral from Rural Student Services.)

Culinary Arts

CAH 105  3 Credits  Fall, Spring
Principles of Food Service I (3+0)
Food service and the principle variations which students may encounter in the industry, professional standards, kitchen safety, first aid, store room operation, kitchen equipment and basic culinary terminology.

CAH 116  1 Credit  As Demand Warrants
Beginning Cake Decorating I (1+0)
The proper baking and icing of cakes. Topics include basic borders, buttercream flowers, and leaves. Students decorate a minimum of three cakes. Materials fee: $15.00.

CAH 117  1 Credit  As Demand Warrants
Intermediate Cake Decorating I (1+0)
Advanced methods such as pattern transfer, flowers and borders, wafer paper and chocolate on cakes for decoration, and flow in techniques. For the more advanced cake decorator. Materials fee: $15.00.

CAH 140  6 Credits  Fall, Spring
Principles of Cooking (6+0)
Teaches basic food service skills in a commercial kitchen environment. Standardized recipes and procedures stressed. End product critiqued daily. Student assignments rotate between a stock and soup station, vegetable station, pantry, and service line and grill. Emphasis on sanitation food handling practices and professional work habits. Uniform cleaning fee: $105.00.

CAH 141  6 Credits  Fall, Spring
Food Production I (6+0)
Continuation of CAH 140 with emphasis on preparation and production of small sauces, sautéing, roasting, braising, stewing and browning. Salad bar preparation and grill service covered. Uniform cleaning fee: $105.00.

CAH 145  6 Credits  Fall, Spring
Principles of Baking (6+0)
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. Uniform cleaning fee: $105.00.

CAH 146  6 Credits  Fall, Spring
Bakery Production I (6+0)
Continuation of CAH 145 with emphasis on Danish and French pastries, combination breads, tortes and fancy dessert items. Uniform cleaning fee: $105.00.

CAH 150  1 Credit  Fall, Spring
Sanitation (1+0)
Sanitation principles essential to commercial kitchen personnel. Successful course completion allows the student to receive certification by the National Institute for the Food Service Industry.

CAH 152  2 Credits  Fall, Spring
Supervisory Development (2+0)
Problems and challenges that food service supervisors deal with daily. Development of personnel management methods.

CAH 154  2 Credits  Fall, Spring
Dining Room Service (2+0)
American style table service. Dining room service, management, controls and methods.

CAH 160  2 Credits  Fall, Spring
Principles of Nutrition (2+0)
Basic principles of nutrition with emphasis on nutrients and their function in relation to human health.

CAH 161  1 Credit  Fall
Pastry Tube Art (1+0)
Basic cake and food product techniques including borders, flowers, cake designing, and proper use of pastry tube bags.

CAH 170  2 Credits  Fall, Spring
Gourmet Cooking (2+0)
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. Materials fee: $75.00.

CAH 171  2 Credits  Fall, Spring
Gourmet Baking (2+0)
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. Materials fee: $45.00.

CAH 172  2 Credits  As Demand Warrants
Gourmet Asian/Oriental Cooking (2+0)
Preparation and service of Asian/Oriental dishes. Study and use of proper cooking methods emphasized. Students prepare and enjoy a full meal at each class session.

CAH 175  2 Credits  As Demand Warrants
Introduction to Meat Cutting (1.5+2.5)
Professional meat cutting for lamb, beef, pork, poultry, and seafood; regulations using current industry standards; sausage making and meat curing.

CAH 199  1-12 Credits  Summer
Culinary Arts Workstudy Internship
Practice in a variety of food service operations, learning current cooking methods and techniques. Student evaluations by the externship coordinator and the employer. Enrollment by special permission only.

CAH 242  4 Credits  Fall, Spring
Food Production II (4+0)
Continuation of CAH 141 with emphasis on ala carte and production cooking. Students prepare foods for the advanced table service class. Foods will represent current trends in the industry with kitchen organization and professional methods stressed. Uniform cleaning fee: $105.00. (Prerequisite: CAH 241.)

CAH 243  4 Credits  Fall, Spring
Food Production III (4+0)
Continuation of CAH 242 with emphasis on international and new trend American Cooking. The role of the Garde Manger in the modern kitchen explored. Uniform cleaning fee: $105.00. (Prerequisite: CAH 242 or permission of instructor.)

CAH 247  4 Credits  Fall, Spring
Bakery Production II (4+0)
Continuation of CAH 245 with emphasis on specialty breads, desserts, cakes, tortes and French pastries. Ability to plan and organize production, schedule and supervise other students emphasized. Uniform cleaning fee: $105.00. (Prerequisite: CAH 246 or permission of instructor.)

CAH 248  4 Credits  Fall, Spring
Bakery Production III (4+0)
Continuation of CAH 247 with emphasis on pastry buffet. Students will produce artistic centerpieces, decorated tortes and cakes, assorted French pastries, assorted petits fours, and assorted candies. Uniform cleaning fee: $105.00. (Prerequisites: CAH 247 or permission of instructor.)

CAH 250  2 Credits  As Demand Warrants
Garde Manger (2+0)
A hands-on experience in buffet. Presentation of hot and cold foods. Students produce pates, mousse, forcemeat, aspic, and other items essential to culinary expertise. Materials fee: $10.00.

CAH 253  2 Credits  As Demand Warrants
Storeroom Purchasing and Receiving (2+0)
Formal and informal methods of purchasing, receiving and storing of food and nonfood items in food service operations. Specifications, par inventory systems and controls.

CAH 255  2 Credits  As Demand Warrants
Food Service Management (2+0)
The management team's responsibility in food service operation. Students assume the role of kitchen manager, dining room manager and general manager.
CAH 256 2 Credits As Demand Warrants
Food Service Accounting (2+0)
Principles and practices concerned with determination of food cost, labor cost, beverage cost and the basic accounting practices necessary to operate a successful food service operation.

CAH 257 1 Credit As Demand Warrants
Oenology-Hospitality Industry I (1+0)
Study and evaluation of the wines of France, Germany, Italy and the California wine producing areas. Focus on "point of sale" approach for first level serving staff. Special attention to selecting for individual meals. Materials fee: $45.00.

CAH 258 1 Credit As Demand Warrants
Oenology-Hospitality Industry II (1+0)
A continuation of CAH 257 with in-depth evaluation and study of the major wine producing areas of the Pacific Northwest, California, France, Germany and Italy. Focus on preparing the new sommelier. Special attention to selections for building cellar and developing breadth in the restaurant. Materials fee: $37.50. (Prerequisite: CAH 257 or permission of instructor.)

Dance

DANC 108 1 Credit As Demand Warrants
Beginning Freestyle Jazz (1+0)
Jazz dance for the beginning student.

Danish

For information on studying at the University of Copenhagen, see Study Abroad.

DNSH 101 5 Credits Fall
DNSH 102 5 Credits Spring
Elementary Danish I & II (5+0) h
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, exploration of the cultural dimension, implicitly through language, and explicitly through texts and audio-visual materials. (Prerequisite: For DNSH 102, DNSH 101.)

DNSH 201 4 Credits Fall
DNSH 202 4 Credits Spring
Intermediate Danish I & II (4+0) h
Continued study of Danish. Increasing emphasis on reading ability and cultural material. Conducted in Danish. (Prerequisite: DNSH 102 or equivalent.)

DNSH 301 3 Credits Fall
DNSH 302 3 Credits Spring
Advanced Danish I & II (3+0) h
Reading essays in more difficult texts - fiction/non-fiction. Study of selected Danish authors and literary genres. Discussions of cultural materials other than texts: films, slides, pictures. Translations, stylistic exercises and special grammar problems. Conducted in Danish. (Prerequisite: DNSH 202 or permission of instructor.)

Developmental Studies

DEVS 052 3 Credits As Demand Warrants
Reading Enhancement (3+0) h
Intensive instruction in reading designed to increase vocabulary and comprehension skills necessary for successful reading in the content areas of college courses.

DEVS 058 1-3 Credits As Demand Warrants
Reading Lab (0+3-9) h
Individualized instruction in improving reading comprehension and efficiency. May be repeated.

DEVS 065 1 Credit As Demand Warrants
Spelling Improvement (1+0) h
A diagnostic/prescriptive approach for improving spelling skills.

DEVS 066 1 Credit As Demand Warrants
Vocabulary Development (1+0) h
Designed to increase vocabulary substantially and to provide tools for further vocabulary growth.

DEVS 104 1-3 Credits Fall, Spring
University Communications (1-3+0)
(Same as CCC 104)
Introduces the unique methods of communication required at the college level. Links with selected lecture courses. May be repeated.

DEVS 105 3 Credits As Demand Warrants
College Reading (3+0)
(Same as CCC 105)
Develops and refines vocabulary, comprehension and critical reading at the college level. Instruction focuses on developing readers' ability to use a wide range of comprehensive strategies to enhance reading effectiveness. Placement by examination.

DEVS 108 1 Credit As Demand Warrants
Study Skills Lab (1+0) h
Improvement of study skills in areas of greatest need on an individual basis in the lab. Topics include time management, listening/notes-making, library research, and memory.

DEVS 110 1 Credit As Demand Warrants
Orientaion to College (2+0)
(Same as PST 110)
An overview of the university as an institution with strategies and resources available to ensure a successful transition to college life in general, and specifically, the University of Alaska Fairbanks. Topics include academic and developmental skill building strategies, such as study skills, time management, career planning, and stress management. An examination of Alaska's past, present and future from social, cultural, political, and economic perspectives, including Pacific Rim and international/global issues. Graded Pass/Fail.

DEVS 185 3 Credits As Demand Warrants
Straight Thinking (3+0) h
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 presentation examined. Effective and convincing presentation of one's own ideas include formal and informal logic. Materials fee: $10.00.

DEVELOPMENTAL ENGLISH

DEVE 060 3 Credits As Demand Warrants
Elementary Exposition (3+0)
Intensive work in the process of writing and revising to improve one's writing skills. Placement by examination.

DEVE 066 1-3 Credits Fall, Spring
English Skills Laboratory (0-3+9) h
Individualized instruction in language skills. Open entry/open exit. One credit lab modules in spelling/vocabulary, writing, and grammar usage. Involvement in one or more based on diagnosed need or desire. May be repeated. Counts as elective credit only; does not fulfill degree requirements in written communications or humanities.

DEVE 070 3 Credits As Demand Warrants
Preparatory College English (3+0)
Instruction in writing to improve students' fluency and accuracy in communication skills. Preparation for ENGL 111. Placement by examination or student decision. Materials fee: $0.00-5.00.

DEVELOPMENTAL MATHEMATICS

DEVN 050 3 Credits As Demand Warrants
Basic College Mathematics (3+0) h
Operations with whole numbers, fractions, decimals, percents and ratios, signed numbers, evaluation of algebraic expressions and evaluation of simple formula. Metric measurement system and geometric figures. Also available via Independent Learning.

DEVN 052 3 Credits Fall, Spring
Alternative Approaches to Math: Basic College Math (3+0) h
Basic college mathematics: operations with percents, decimals, fractions and signed numbers, translating word problems, introduction to algebra and geometry, using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: Appropriate placement test scores. Students must meet federal eligibility requirements.)

DEVN 060 3 Credits As Demand Warrants
Elementary Algebra (3+0) h
First year high school algebra. Evaluating and simplifying algebraic expressions, solving first degree equations and inequalities, integral exponents, polynomials, factoring, rational expressions. Also available via Independent Learning. (Prerequisite: DEVN 050 or placement.)
COURSE DESCRIPTIONS—EARLY CHILDHOOD DEVELOPMENT / 133

DEV M 061 1 Credit Independent Learning Only
Review of Elementary Algebra
Designed to assist students in reviewing material covered by DEV M 060. Individuals who have not previously taken an elementary algebra course are recommended to enroll in DEV M 060.

DEV M 062 3 Credits Fall, Spring
Alternative Approaches to Math: Elementary Algebra (3+0)
Elementary algebra. Algebraic equations, first-degree equations, polynomials, factoring, integral exponents and rational expressions using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: DEV M 050 or appropriate placement test scores. Students must meet federal eligibility requirements.)

DEV M 065 1-3 Credits As Demand Warrants
Mathematics Lab (0+3-9)
An individual tutorial lab. Course content selected according to the needs of the individual student from the topics covered in DEV M 050 and DEV M 060. (Prerequisite: Placement.)

DEV M 070 3 Credits As Demand Warrants
Intermediate Algebra (3+0)
Second-year high school algebra. Operations with rational functions, radicals, rational exponents, complex numbers, quadratic equations and inequalities, Cartesian coordinate system and graphing, systems of equations, determinants and logarithms. Also available via Independent Learning. (Prerequisite: DEV M 060 or placement.)

DEV M 071 1 Credit Independent Learning Only
Review of Intermediate Algebra
Course reviews material covered by DEV M 070. Individuals who have not taken an intermediate algebra course on the high-school level are recommended to enroll in DEV M 070.

DEV M 072 3 Credits Fall
Alternative Approaches to Math: Intermediate Algebra (3+0)
Intermediate algebra. Exponents, radicals, graphing, systems of equations, quadratic equations, inequalities and complex numbers using alternative teaching styles tailored to specific cultural backgrounds of the students. (Prerequisites: DEV M 060 or appropriate placement test scores. Students must meet federal eligibility requirements.)

DEV M 081 1 Credit Independent Learning Only
Review of Basic Geometry
High school geometry without formal proofs. Topics include basic definitions, measurement, parallel lines, triangles, polygons, circles, area, solid figures and volume. (Prerequisite: DEV M 060.)

Diesel Technology

DSL T 150 7 Credits As Demand Warrants
Diesel Mechanics I (7+0)
Theory and function of the diesel engine. Topics include introduction to various diesel engines, shop tools and instruments for engine disassembly, inspection, assembly, parts, failure analysis and shop safety. Materials fee: $125.00.

DSL T 152 7 Credits As Demand Warrants
Diesel Mechanics II (7+0)
A continuation of DSL T 150. Topics include air intake systems, exhaust systems, lube systems, cooling systems, and fuel systems. Materials fee: $125.00. (Prerequisite: DSL T 150.)

Drafting Technology

DRT 100 1 Credit As Demand Warrants
Introduction to Drafting Concepts (1+0)
Principles of architectural, civil and industrial drafting.

DRT 101 4 Credits As Demand Warrants
Beginning Drafting I (4+0)
Technical lettering, line techniques, equipment, orthographics, dimensioning, pictorials, auxiliaries and sections. Materials fee: $50.00.

DRT 102 2 Credits As Demand Warrants
Beginning Drafting II (2+0)
Practice and skill development in geometric construction, sketching, orthographics and dimensioning, sections, auxiliaries and individual projects. Materials fee: $20.00.

DRT 115 3 Credits As Demand Warrants
Graphics I (3+0)
Study and application of methods, problems and solutions in graphic design.

DRT 121 3 Credits As Demand Warrants
Reading Construction Blueprints (2+0)
Reading and interpretation of two and three dimensional blueprints of residential, light commercial and heavy commercial structures using conventional symbols and representation.

DRT 123 3 Credits As Demand Warrants
Uniform Building Code (3+0)
Covers the minimum required construction standards of the Uniform Building Code. Use of local zoning ordinances and the UBC in comprehensive building guides and their principle 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. (Prerequisite: Working knowledge of building systems is strongly recommended.)

DRT 125 2 Credits As Demand Warrants
Lettering I (2+0)
Lettering methods including variographic, Leroy, Kohi-Noor, Kad II, freehand and script. Commercial lettering skills.

DRT 130 4 Credits As Demand Warrants
Perspective Drafting I (4+0)
Basics of perspective (1 pt., 2 pt., 3 pt.) and introduction to the KLOK Perspective Board.

DRT 132 4 Credits As Demand Warrants
Perspective Drafting II (4+0)
Additional experience in 1 and 2 pt., perspectives on the KLOK perspective board in both interior and exterior perspectives (Prerequisite: DRT 130.)

DRT 140 4 Credits As Demand Warrants
Architectural Drafting I (4+0)
Architectural drafting principles including site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plans, and graphic standards. Materials fee: $30.00.

DRT 141 2 Credits As Demand Warrants
Architectural Concepts (2+0)
Architectural drafting concepts including basic site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plans, and graphic standards. Materials fee: $15.00.

DRT 150 4 Credits As Demand Warrants
Civil Drafting I (4+0)
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. Materials fee: $30.00.

DRT 151 2 Credits As Demand Warrants
Civil Concepts (2+0)
Overview of civil drafting concepts and survey drafting including the plotting of traverse and surveys by bearing and distance. Materials fee: $15.00.

DRT 160 2-3 Credits As Demand Warrants
Drafting Co-Op Work Experience (2-3+0)
A non-paid practical work experience in a professional drafting environment. For the student who has mastered basic drafting techniques and terminology. Placement and work assignments will vary depending upon student experience.

DRT 250 4 Credits As Demand Warrants
Civil Drafting III-Advanced (4+0)
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.

Early Childhood Development (SCCE)

The Early Childhood Development (ECHD) courses listed below are taught only in Fairbanks under auspices of the School of Career and Continuing Education. See the next section of this catalog for Early Childhood Education (ECDD) courses taught outside of Fairbanks under auspices of the Rural College.

ECHD 100 3 Credits As Demand Warrants
Introduction to Early Childhood (3+0)
ECHO 103 2 Credits
Financial Management of Early Childhood Development Programs (2+0)
Emphasis on the decision-making role for attaining quality environments with consideration of budgeting, fund raising, record keeping, personnel training, facility and legal issues. For practicing directors and managers, head teachers and others interested in pursuing a career in child care management or early childhood program management.

ECHO 241 2 Credits
Personnel Management in ECD Programs (2+0)
Management of personnel of child care programs, including in-service training, staff meetings and communication, staff supervision, evaluating staff, staff motivation, burn-out prevention, and termination of employees. Labor management specific to early childhood programs.

ECHO 242 1 Credit
As Demand Warrants
Observe/Record Behavior of Child (1+0)
Techniques for accurately observing children's behavior, including several methods of observation and techniques for graphing the results.

ECHO 245 3 Credits
As Demand Warrants
Child Development (3+0)
(Same as PSY 245)
Study of development from prenatal through middle childhood including cognitive, emotional, social, and physical aspects of the young child. Includes child observations. Roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)

ECHO 250 3 Credits
As Demand Warrants
Practicum ECHD 1 (3+0)
A guided student teaching experience in working with a group of 3-6 year old children. Student assumes increasing responsibility for planning and lead teaching. Prerequisites: PSY 245, ECHD 100, 110, 120, 131, 255 and permission of the instructor.

ECHO 253 3 Credits
As Demand Warrants
Activities for Young Children (3+0)
Art, music, literature, and language experiences, science, math, food experiences, and excursions. For parents, caregivers and teachers of children ages 2-6. Lab required.

ECHO 260 3 Credits
As Demand Warrants
Introduction to the Exceptional Child (3+0)
An overview of categories of exceptionality includes hearing and visual impairments; learning, speech and language disabilities; emotional disturbances; physical handicaps; mental retardation; and the gifted and talented. (Prerequisite: ECHD/PSY 245 or permission of instructor.)

ECHO 261 3 Credits
Alternate Fall
Mainstreaming Exceptional Children (3+0)
Developmental, social, educational, and legal (PL 94-1437) issues related to the education of young handicapped children including the role of the teacher in identifying, assessing, and individualizing educational programs for the young handicapped child in the mainstream setting. (Prerequisites: ECHD/PSY 245 and ECHD 260 or instructor permission. Next offered: 1992-93.)

ECHO 263 2 Credits
As Demand Warrants
Cultural Learning and the Young Child (2+0)
Effects of culture development and learning patterns of young children. Curriculum planning with emphasis on multi-cultural and multi-ethnic resources; special attention on Alaskan Native Cultures.

Early Childhood Education (Rural College)
The Early Childhood Education (ECHD) courses listed below are taught only outside of Fairbanks under auspices of the Rural College. See the preceding section of this catalog for Early Childhood Development (ECHD) courses taught in Fairbanks under auspices of the School of Career and Continuing Education.

Important Note: All Early Childhood Education courses must be accompanied by a lab experience in a facility for children ages 0-5.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
<th>Description</th>
<th>Warrants</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECDD 109</td>
<td>1</td>
<td>Orientation to Child Development (1+0)</td>
<td>Overview of training programs for early childhood workers with specific training for working in a Child Development Associate program. Instruction in how to perform as CDA field trainees and/or CDA candidates.</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 111</td>
<td>1</td>
<td>A Safe Environment (1+0)</td>
<td>Teaches competencies which enable students to provide a safe environment for young children. Emphasis on measures necessary to reduce and prevent accidents. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 112</td>
<td>1</td>
<td>A Healthy Learning Environment (1+0)</td>
<td>Prepares the student to provide a learning environment for young children free of factors which may contribute to or cause illness. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 113</td>
<td>1</td>
<td>Learning Environment (1+0)</td>
<td>Arranging the environment to be conducive to learning and appropriate to the developmental level and learning style of children. Selection of materials and equipment, room arrangement, and scheduling. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 121</td>
<td>1</td>
<td>Physical Activities for Young Children (1+0)</td>
<td>Essentials of planning a center which promotes the physical development of children. Includes scheduling, planning, activities, and selection of site, equipment and materials. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 122</td>
<td>1</td>
<td>Cognitive Activities for Young Children (1+0)</td>
<td>Activities and experiences which encourage questioning, probing, and problem-solving skills appropriate for different developmental levels and various learning styles of young children. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 123</td>
<td>1</td>
<td>Communication Activities (1+0)</td>
<td>Activities that help children acquire and use language as a means of communicating their thoughts and feelings. Includes non-verbal communication and understanding of others. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 124</td>
<td>1</td>
<td>Creative Activities for Young Children (1+0)</td>
<td>Activities which provide a variety of experiences and media that stimulate children to explore and express their creative ability. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 131</td>
<td>1</td>
<td>Guidance and Discipline (1+0)</td>
<td>Indirect and direct guidance techniques. Theories of guidance, including body language effects, reinforcement, and logical consequences discussed for cultural relevance and practical application. (CDA curriculum)</td>
<td>As Demand Warrant</td>
</tr>
<tr>
<td>ECDD 132</td>
<td>1</td>
<td>Social Development for the Young Child (1+0)</td>
<td>The development of social skills which enable children to function as productive members of a group. Emphasis on the development of mutual respect and cooperative work/play between child/child and child/adult. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 211</td>
<td>1</td>
<td>Developing Positive Self-Concepts for Young Children (1+0)</td>
<td>Methods for helping children develop a sense of awareness and 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. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 212</td>
<td>1</td>
<td>Developing Individual Strengths in Children (1+0)</td>
<td>Use of activities, techniques and planning that help each child to function to his/her maximum potential. Must be taken concurrently with supervised experience in a child development center, home-based or infant-learning setting</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>ECDD 221</td>
<td>1</td>
<td>Positive Home-Center Relationship (1+0)</td>
<td>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.</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 222</td>
<td>1</td>
<td>Program Management (1+0)</td>
<td>The importance of coordination and communication among staff in the classroom. Emphasis on effective group planning, using resources, improving communication, sharing information about children, maintaining records, and establishing and following policies, rules and regulations. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 223</td>
<td>1</td>
<td>Professionalism (1+0)</td>
<td>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. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 231</td>
<td>1</td>
<td>Screening (1+0)</td>
<td>Activities which help the teacher to understand the purpose of screening young children and to know how to use good screening procedures. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 232</td>
<td>1</td>
<td>Assessment/Recording (1+0)</td>
<td>Activities that will help the teacher to understand assessment of young children, recording of assessment information, and staffing. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 233</td>
<td>1</td>
<td>Mainstreaming Young Children with Special Needs (1+0)</td>
<td>Activities that help the teacher to understand the concept and purpose of mainstreaming special needs preschool children into the regular classroom. Emphasis on rights of special needs child to service and procedures for providing service under Public Law 94-142. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECDD 238</td>
<td>1</td>
<td>Final Assessment for Child Development Associate Credential (1+0)</td>
<td>Covers procedures for final assessment for the Child Development Associate (CDA) credential. Emphasizes needs of a group of children in a child development setting by nurturing and maintaining a proper child care environment and by promoting good relations between parents and the child development center. (CDA curriculum)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECON 100X</td>
<td>3</td>
<td>Political Economy (3+0)</td>
<td>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.</td>
<td>Fall, Spring (Same as PS 100X)</td>
</tr>
<tr>
<td>ECON 101</td>
<td>3</td>
<td>Introduction to Current Economic Problems (3+0)</td>
<td>Focuses on such current problems as unemployment, inflation, pollution, and poverty utilizing a less theoretical approach than is customary in introductory economics courses. Primarily for the student who plans no further work in economics.</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>ECON 111</td>
<td>3</td>
<td>Economics of Rural Alaska (3+40)</td>
<td>Basic economic concepts as they relate to issues and problems of contemporary regional development in rural Alaska. Socio-economic consequences of the introduction of new technologies, modern economic infra-structures and corporate relationships to traditional, small scale communities.</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ECON 137</td>
<td>3</td>
<td>The Alaskan Economy (3+40)</td>
<td>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. Also available via Independent Learning.</td>
<td>Spring</td>
</tr>
</tbody>
</table>
ECON 200 4 Credits Fall, Spring
Principles of Economics (4+0+1) s
Goals, incentives and outcomes of economic behavior with applications and illustrations from current issues: operation of markets for goods, services, and factors of production; the behavior of firms and industries in different types of competition; and income distribution. The functioning and current problems of the aggregate economy, determination and analysis of aspects of international exchange. (Prerequisite: Sophomore standing or permission of instructor.)

ECON 201 3 Credits Fall, Spring
Principles of Economics I: Microeconomics (3+4) s
Price and market theory, income distribution, contemporary problems of labor, agriculture, market structure, and pollution. Also available via Independent Learning.

ECON 202 3 Credits Fall, Spring
Principles of Economics II: Macroeconomics (3+4) s
Analysis and theory of national income, money and banking, and stabilization policy. Also available via Independent Learning.

ECON 227 3 Credits Fall, Spring
Intermediate Statistics for Economics and Business (3+4) s
Extension of topics developed in STAT 200. 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, non-parametric methods, and decision theory. Materials fee: $20.00 (Prerequisite: STAT 200.)

ECON 235 3 Credits Fall
Introduction to Natural Resource Economics (3+4) s
Microeconomic principles and their application to natural resource issues. Topics include supply, demand, marginality, optimality, elementary pollution 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.

ECON 321 3 Credits Fall
Intermediate Microeconomics (3+4) s
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 200 and MATH 282 or equivalent.)

ECON 322 3 Credits Spring
Managerial Economics (3+4) s
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. Materials fee: $10.00. (Prerequisites: ECON 200 and MATH 262 or equivalent.)

ECON 324 3 Credits Spring
Intermediate Microeconomics (3+4) s
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 200 and MATH 262 or equivalent.)

ECON 335 3 Credits Spring
Intermediate Natural Resource Economics (3+4) s
Extension of concepts developed in ECON 235, 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. (Prerequisite: ECON 200 or 235.)

ECON 350 3 Credits Fall
Money and Banking (3+0) s
The money and banking 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. (Prerequisite: ECON 200.)

ECON 351 3 Credits Alternate Fall
Public Finance (3+4) s
Economic justifications for government; federal, state and local government, taxation, spending and debt; their effects on allocation, distribution, stabilization and growth. (Prerequisite: ECON 200. Next offered: 1991-92.)

ECON 408W 3 Credits As Demand Warrants
Industrial Organization and Public Policy (3+4) s
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 concentration, and aggregate concentration. (Prerequisites: ECON 200, 321. Next offered: 1991-92.)

ECON 420W 3 Credits Fall
Labor Markets and Public Policy (3+0) s
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. (Prerequisite: ECON 200.)

ECON 436W 3 Credits Energy Economics (3+0) s
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. (Prerequisite: ECON 200 or 235. Next offered: 1992-93.)

ECON 437W 3 Credits Alternate Fall
Regional Economic Development (3+0)

ECON 438W 3 Credits As Demand Warrants
The Economics of Fisheries Management (3+0)
Review of theoretical economic concepts as applied to the management of a commercial fishery. Major current management policy issues affecting United States' commercial fishing. Emphasis on the practical application of the economic theory and policy insights derived from the course to problems of management of Alaska's fisheries. (Prerequisite: ECON 200 or 235. Next offered: 1991-92.)

ECON 451W 3 Credits Spring
Public Expenditure Analysis (3+0)
Purposes and economic effects of governmental expenditures, budgeting techniques, and their effects on resource allocation. (Prerequisite: ECON 200.)

ECON 453O 3 Credits Fall
International Economics (3+0) s
Pure theory of international trade: comparative cost, terms of trade, and factor movements. International disequilibrium: balance of payments and its impact on national economy, capital movement, economic development through international trade. (Prerequisite: ECON 200.)

ECON 475 1-3 Credits Fall, Spring
Economic Internship
Designed to give students the opportunity to do research or other practical work with business, governmental agencies, or research organizations. (Prerequisite: Admission by permission of instructor.)

ECON 601 3 Credits Fall
Microeconomic Theory I (3+0)

ECON 602 3 Credits Spring
Microeconomic Theory II (3+0)

ECON 611 3 Credits Fall
Principles of Economic Analysis (3+0)

ECON 623 3 Credits Fall
Mathematical Economics (3+0)

ECON 624 3 Credits Fall
Managerial Economics (3+0)

ECON 626 3 Credits Fall
Econometrics (3+0)

ECON 630 3 Credits Spring
Economic Issues of the Circumpolar North (3+0) (Same as NORS 630)

ECON 635 3 Credits Spring
Resource Economics (3+0)

ECON 636 3 Credits Spring
Microeconomics II — Dynamic Resource Optimization (3+0)

ECON 670 0 Credit Spring
Seminar in Research Methodology (1+0)
**Education**

**ED 101** 1 Credit  
*Orientation to Alaska Native Education (1-0)*  
Fall, Spring  
A seminar in which Native Alaska educators present information and lead discussions on issues related to rural and urban Alaska Native education. Topics include cultural differences in teaching and learning styles; curriculum development for multi-graded classrooms and small high schools; use of technology and community resources; and decision-making and local control. (Prerequisite: Permission of instructor.)

**ED 106** 3 Credits  
*Reading Activities in the Classroom (3-0)*  
As Demand Warrants  
Methods, materials and teaching of reading. Techniques for working with small group and individual students. Topics include assessment, teaching strategies, and the process of learning to read. (Prerequisite: A grade of B or better in ED 101.)

**ED 131** 1-3 Credits  
*Implementation of an Adult Education Program (1-0, 2-0, 3-0)*  
As Demand Warrants  
Procedure for planning and establishing a village-based adult education program. Includes organizing the classroom, equipment and materials; grades and record keeping; testing and assessing appropriate levels of material for individual students; lesson plans, as well as history and functions of adult education; funding teacher education and evaluation tools.

**ED 141** 3 Credits  
*Introduction to Methods and Materials in Bilingual Education (3-0)*  
As Demand Warrants  
Methods and problems of teaching in and preparing material for the bilingual classroom in the areas of reading, language arts, social studies, mathematics, sciences, art, music and health including lesson planning, scheduling, production of bilingual materials, and team teaching. (Recommended: Literacy in both languages of instruction.)

**ED 200** 2-6 Credits  
*Peer Tutoring (1+3 to 6)*  
As Demand Warrants  
Peer tutoring offers an opportunity to explore issues and practice tutoring techniques. For students interested in teaching or those who wish to share their expertise in a content area. Students may take the Institute section (3 weeks) and/or the Learning Activities Center section (12 weeks). Lab time arranged for variable credit; course may be repeated for up to six credits.

**ED 201** 3 Credits  
*Introduction to Education (2+3)*  
Fall, Spring  
The prospective teacher is acquainted with the nature of teaching including the scholastic, professional, and personal responsibilities for effective teaching. Involves laboratory time in public schools as teacher's aide. Open to all students. Required for all students majoring in education. (Prerequisite: Sophomore standing.)

**ED 208** 3 Credits  
*Art for the Classroom Teacher (3-0)* (Same as ART 208)  
As Demand Warrants  
Concepts in art education for persons with limited art background working with young children. Combines philosophy of art education, art history, and hands-on experiences to enable the teacher to effectively integrate visual arts into the curriculum as enjoyment and enrichment.

**ED 210** 3 Credits  
*Second Language Acquisition (3-0)*  
As Demand Warrants  
An intensive study of how people acquire second languages, i.e., ones in addition to the ones they learn as young children in the home. Topics include psychological, social and cultural aspects of second language acquisition, theory of acquisition, applied linguistic and sociolinguistic research, and insights of teachers and students of second languages. Examination of acquisition of languages by people in the students' own communities.

**ED 211** 3 Credits  
-Methods and Materials for Teaching a Second Language (3-0)*  
As Demand Warrants  
Intensive study of the broad repertoire of second language teaching methods. Includes designing, teaching, and assessing actual lessons. (Prerequisite: Experience as an educator in a bilingual/bicultural or second language classroom or permission of instructor.)

**ED 212** 3 Credits  
*Curriculum Development for Teaching a Second Language (3-0)*  
As Demand Warrants  
Development of scope and sequence for unit plans and yearly/multi-year curricula for teaching a second language. (Prerequisite: Experience in a second language classroom or permission of instructor; ED 211 strongly recommended.)

**ED 213** 3 Credits  
*Curriculum Development and Learning (3-0)*  
As Demand Warrants  
Interrelated principles of human growth, development, adjustment and learning. For students preparing for a career in teaching but also open to parents, counselors, community workers and others.

**ED 214** 3 Credits  
*Natural Approaches to Language Instruction (3-0)*  
As Demand Warrants  
Students explore modern approaches, methods, techniques, and activities which have been successful in teaching second languages.

**ED 215** 3 Credits  
*Methods of Teaching a Second Language (3-0)*  
As Demand Warrants  
Provides a basic knowledge of second language acquisition theory. Students taught to adapt materials for teaching Inupiaq, Yupik or English as a second language, and write and implement second language lesson plans. Attention paid to practicing different methods of instruction.

**ED 216** 3 Credits  
*Children’s Literature (3-0)*  
As Demand Warrants  
A survey of children's literature and storytelling from around the world, including criteria for evaluation. Emphasizes methods of encouraging children's appreciation of a variety of selections. Students may study materials for a specific age group within 1-12 years.

**ED 220** 3 Credits  
*Culture and Learning (3-0)*  
As Demand Warrants  
The role of culture in human development. Study of the learning process in various cultural contexts. Attention to problems of conflicting cultures and role of education in a changing world and as an agent of change.

**ED 241** 3 Credits  
*Methods and Materials in Bilingual Education (3-0)*  
As Demand Warrants  
Overview of bilingual instruction. Students make and adapt materials for the classroom. Attention to practicing different methods of instruction.

**ED 245** 3 Credits  
*Child Development (3-0)*  
As Demand Warrants  
A study of the physical, emotional, cognitive, and social aspects of a child's development from the prenatal period through early adolescence. (Prerequisite: PSY 101 or permission of instructor.)

**ED 262** 3 Credits  
*Methods of Teaching English as a Second Language and Standard English as a Second Dialect (3-0)*  
As Demand Warrants  
Covers basic underlying assumptions about the nature of language, language learning, language teaching, characteristics of good language learners, optimal language learning environments, and what affects they have on teaching styles. Roles of the second language teacher and their appropriateness covered. Presents techniques and activities consistent with specific language teaching methods and adaptation of these methods to the needs of western Alaska classrooms. (Prerequisite: Classroom experience.)

**ED 275** 3 Credits  
*Introduction to Microcomputers for Teachers (3-0)*  
Fall, Spring  
Computer technology and its present and potential impact on education. Topics include basic microcomputer terminology and operation, classroom applications of computer technology, and choosing and using hardware and software. (Prerequisite: ED 201 or concurrent enrollment in ED 201.)

**ED 290, 190, 299** 1-3 Credits  
*Practicum in Education (1-0)*  
As Demand Warrants  
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.

**ED 303** 3 Credits  
*Language and Literacy Development (3-0)* (Same as LING 303)  
As Demand Warrants  
Principles, procedures, and materials for enhancing the language development of young children. (Prerequisite: PSY 240.)

**ED 304** 3 Credits  
*Evaluation for Children (3-0)*  
Fall, Spring  
Evaluation criteria and application to children's books selected by student. Study of outstanding authors, illustrators, and content of specific categories of literature, book selection aids, and effective use of literature to promote learning. (Prerequisite: Junior standing.)

**ED 309** 3 Credits  
*Elementary School Music Methods (3-0)* (Same as MUS 309)  
Principles, procedures, and materials for teaching music to children at the elementary level. (Prerequisite: ED 330.)
ED 310 3 Credits  
Modes of Creative Expression in Education (3+0)  
Use of art, music, dance, drama, photography and creative writing in education to stimulate creative expression. Methods of incorporating these modes of expression into teaching practices. (Prerequisite: ED 330.)

ED 311 3 Credits  
Introduction to Instructional Technologies (2+3)  
Principles, procedures, materials and apparatus associated with use of instructional technologies. Instructional [AV] equipment: video recorders, teleconferencing equipment, motion and still picture projectors, audio recorders, and other programmable equipment reviewed. Systematic selection and utilization techniques. (Prerequisite: ED 201 or concurrent enrollment in ED 201.)

ED 330 3 Credits  
Diagnosis and Evaluation of Learning (3+0)  
Nature of classroom teaching-learning process, emphasizing teaching decisions. Strengths and weaknesses of various forms of diagnosis and evaluation of learning, with emphasis on problems in cross-cultural settings. Informal, formal, process, and product assessment. (Prerequisite: PSY 240: concurrent enrollment in PSY 240 permissible for students with senior standing or earned degree.)

ED 333 3 Credits  
History of Childhood (3+0)  
Surveys child rearing practices in the major cultures of the world and parent-child relationships in different time periods. Examines psychogenic pressure changes caused by parent-child interaction through successive generations. (Prerequisite: Junior standing.)

ED 338 3 Credits  
EDUCATION AND ECONOMIC DEVELOPMENT (3+0)  
(Same as RD 338)  
Examines theory and evidence linking varied forms of education to economic development and developmental models. A comparative approach explores similarities and differences between rural Alaskan regional development and systematic nation-building efforts in developing countries. (Prerequisite: Permission of instructor.)

ED 345 3 Credits  
SOCIOLGY OF EDUCATION (3+0)  
(Same as SOC 345)  
The influence of social, political, and economic forces upon schools. Examines how school organization affects teaching practices, how peer groups affect student learning, and how national political and economic concerns determine what becomes an educational issue. (Prerequisites: SOC 101 and junior standing.)

ED 346 3 Credits  
STRUCTURE OF AMERICAN EDUCATION (3+0)  
Fundamentals of public school organization, control and support in the federal, state, and local levels. Issues related to the structure and delivery of educational services analyzed with attention to issues in Alaska. (Prerequisite: Junior standing in education.)

ED 350 3 Credits  
COMMUNICATION IN CROSS-CULTURAL CLASSROOMS (3+0)  
Interdisciplinary examination of communication and language in cross-cultural educational situations, including language, literacy, and inter-ethnic communication related to classrooms in Alaska. Also available via Independent Learning. (Prerequisite: LING 101 or ANL 215 or ANL 216 or permission of instructor.)

ED 393 3 Credits  
THE EXCEPTIONAL LEARNER (3+0)  
Understanding, identifying and serving the exceptional learner in the regular classroom in rural and urban settings. Includes the unique needs of exceptional students in rural settings from bilingual/multicultural backgrounds. Also available via Independent Learning. (Prerequisites: ED 201 and PSY 240.)

ED 390 3 Credits  
CULTURAL INFLUENCES IN EDUCATION (3+0)  
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. (Prerequisite: ED 330 and junior standing.)

ED 402 3 Credits  
METHODS OF TEACHING IN THE SECONDARY SCHOOL (2+3)  
Principles and methods of teaching for junior high and high school classrooms. Includes planning for effective teaching, classroom management, and the implementation of teaching plans in classroom settings. Material fee: $15.00. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

ED 407 3 Credits  
MATH & SCIENCE: METHODS AND CURRICULUM DEVELOPMENT (3+0)  
Study of concepts, content, methods and materials which characterize the teaching of mathematics and science; the development of written plans and units; and practicum experience in elementary school. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

ED 411 3 Credits  
EDUCATION AND ECONOMIC DEVELOPMENT (3+0)  
Study of concepts, content, methods and materials which characterize the teaching of mathematics and science; the development of written plans and units; and practicum experience in elementary school. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

ED 412 3 Credits  
LANGUAGE ARTS AND SOCIAL STUDIES: METHODS AND CURRICULUM DEVELOPMENT (3+0)  
Study of concepts, content, methods and materials which characterize the teaching of language arts and social studies; the development of written plans and units; and practicum experience in elementary school. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

ED 413 3 Credits  
MATH & SCIENCE: METHODS AND CURRICULUM DEVELOPMENT (3+0)  
Study of concepts, content, methods and materials which characterize the teaching of mathematics and science; the development of written plans and units; and practicum experience in elementary school. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

ED 420 3 Credits  
ALASKAN NATIVE EDUCATION (3+0)  
(Same as ANS 420)  
School systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisite: ANTH 242 or HIST 100, or permission of instructor.)

ED 422 3 Credits  
BUILDING A PRACTICAL PHILOSOPHY OF EDUCATION (3+0)  
Study of philosophy as a distinct discipline with its own terminology, concepts, and processes and how it functions in the field of education. Emphasis on an application of philosophy of education to cross-cultural situations in Alaskan classrooms. Available only via independent Learning. (Prerequisite: Junior standing or permission of instructor.)

ED 424 3 Credits  
SMALL HIGH SCHOOL PROGRAMS (2+3)  
Examines traditional and alternative approaches to the design of small high school programs, with emphasis on problems of designing secondary programs for the small rural communities of Alaska. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

ED 425 3 Credits  
COMMUNITY AS AN EDUCATIONAL RESOURCE (2+3)  
Methods and techniques for developing and implementing a community-oriented curriculum with practical experience in identifying and using community educational resources. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

ED 429 3 Credits  
MICROCOMPUTER APPLICATION IN THE CLASSROOM (2+2)  
Strategies for effective use of microcomputers in the classroom: understanding potentials and limitations of the computer in the schools; developing classroom plans to take advantage of computer potentials; and evaluation of educational software. (Prerequisites: Upper division undergraduate or certified teacher status.)
ED 430 3 Credits Fall, Spring
Multicultural Teaching Techniques (2+3)
Effective teaching strategies for cross-cultural and multicultural classrooms with attention to practices for secondary schools (small school design, computer-based instruction, telecommunications, community-based education, migration of coursework, experiential education, productive thinking skills, and individual programmed instruction). Weekly participation in multicultural classrooms. (Prerequisite: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

ED 450 3 Credits As Demand Warrants
Education and Cultural Transmission (3+0)
Educational processes for transmitting culture with examination of issues related to cultural transmission in a multi-cultural environment. Emphasis on dynamics of cultural change. (Prerequisite: ED 330 and junior standing.)

ED 451 1-9 Credits Fall, Spring
Practicum in Education
Practical application of general ideas and techniques addressed in methods courses in which the student is currently enrolled or previously completed. (Prerequisites: ED 201, 330, 402 or equivalent; concurrent enrollment permitted with ED 402; permission of instructor.)

ED 452 12 Credits Fall, Spring
Elementary Student Teaching (1+33)
Supervised teaching in elementary schools approved by the department of education. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

ED 453 12 Credits Fall, Spring
Secondary Student Teaching (1+33)
Supervised teaching in secondary schools approved by the department of education. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

ED 454 12 Credits Fall, Spring
Student Teaching K-12 (1+33)
Supervised teaching in both elementary and secondary schools approved by the department of education. Open only to Music and P.E. majors seeking K-12 certification or to graduate students seeking K-12 small school 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 registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

ED 455 3 Credits Summer
Orientation to Teaching in Rural Alaska (2+3)
Needs of rural schools, their environments and the recipients of school services with special attention given to cross-cultural educational issues. (Prerequisite: Permission of instructor.)

ED 462 3 Credits Fall
Alaskan Environmental Education (3+0)
(Same as NRM 462)
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 primary school to summer campus, short courses, and workshops for individuals of any age. (Prerequisite: Junior standing or permission of instructor.)

ED 470 3 Credits As Demand Warrants
Human Resource Development (3+0)
Strategies and approaches which emphasize mobilization and utilization of human resources within general processes of socio-economic change and development in historical and cross-national contexts. (Prerequisite: Junior standing.)

ED 472 3 Credits Spring
Marine Education (3+0)
Instructional techniques and methods for integrating marine and freshwater programs into schools and communities using elementary level Alaska Sea Week Curriculum Guides, plus secondary level materials. Survey of marine biology, oceanography, fisheries, birds, marine mammals, freshwater ecology and the social and political implications of coastal and river issues. (Prerequisites: BIOL 105, 106 and MSL 111 or its equivalent.)

ED 475 3 Credits Alternate Spring
LOGO: A Computer Language for Teachers (3+0)
The study of the use of the LOGO language with Apple computers including the implications of this language for education its use in the curriculum. (Prerequisite: Upper division undergraduate or certified teacher status. Next offered: 1992-93.)

ED 480 3 Credits Fall, Spring
Curriculum Development in Cultural Perspective (3+0)
Issues in development of curriculum programs and materials in a cross-cultural environment. Emphasis on process, content, and context as well as curriculum change and evaluation strategies. Students work on a curriculum development project applicable to their individual circumstances. (Prerequisite: ED 330.)

ED 500 1 Credit As Demand Warrants
Wildlife and Wetlands Curricula (1+0)
Wildlife education curriculum, focusing on strategies for teaching biological and ecological concepts related to the goose populations which nest in the Yukon-Kuskokwim delta; strategies for teaching students the value of wetlands as wildlife habitat, migration, how wildlife becomes endangered and extinct, and ways to develop a sense of personal responsibility and decision-making skills about wildlife.

ED 582 4 Credits Fall
Teaching as Reflective Inquiry (3+3)
Reflective inquiry into the social organization and cultures of large and small schools. Motivations of teachers and stages of professional development. Context of teaching: legal framework, school finance, history of American education and education in Alaska. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

ED 583 8 Credits Fall
Teaching as Decision-Making and Invention (4+0+4)
Considers educational purposes of the curriculum, study of methods and research concerning teaching of major subject areas. Exploration of learning, curriculum development, organization of classroom, evaluation and testing, and needs of special students in multicultural contexts. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

ED 584 3 Credits Fall
Practicum: Teaching in Small and Large Schools (0+6)
Accompanies ED 583 and serves as laboratory where students can explore concepts and methods of teaching. Students observe, assist teachers, and prepare classes in the public schools. Should be taken concurrently with ED 583. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

ED 585 3 Credits Spring
Reflective Inquiry into Multicultural Classrooms and Communities (1+6)
A field-directed course which accompanies student teaching. A structured opportunity for student teachers to reflect on the cultures of the communities in which they are teaching and the social organization of their classrooms. Students do research on the economy and political organization of the community in which they are teaching and the responses of their students to alternative motivational and pedagogical approaches. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

ED 586 3 Credits Spring
Designing Learning Environments (2+3)
This culminating course of the TFA program involves directed fieldwork projects and brings together the student cohort group for a seminar at the conclusion of their student teaching experience. The full-week seminar features analysis and discussion of their classroom and community experience during student teaching with additional study of issues which students found troubling and problematic. Students develop group for students of their own student teaching experience which they discuss with the seminar group. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

ED 601 3 Credits Fall
Introduction of Applied Social Science Research (3+0)
ED 603 3 Credits Spring
Field Study Research Methods (3+0)
ED 610 3 Credits Alternate Fall
Education and Cultural Processes (3+0)
ED 611 3 Credits As Demand Warrants
Learning, Thinking, and Perception in Cultural Perspective (3+0)
ED 612 3 Credits Alternate Spring
Cultural and Philosophical Foundations of Education (3+0)
ED 615 3 Credits Alternate Spring
Social Organization of Classrooms and Learning (3+0)
## Electrical Engineering

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Term</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 102</td>
<td>3</td>
<td>Introduction to Electrical Engineering (3+0)</td>
<td>Spring</td>
<td></td>
</tr>
<tr>
<td>EE 203</td>
<td>4</td>
<td>Electrical Engineering Fundamentals I (3+3)</td>
<td>Fall, Spring</td>
<td>$25.00</td>
</tr>
<tr>
<td>EE 204</td>
<td>4</td>
<td>Electrical Engineering Fundamentals II (3+3)</td>
<td>Fall, Spring</td>
<td>$25.00</td>
</tr>
</tbody>
</table>

### EE 303 4 Credits
**Electrical Machinery (3+3)**
Electromechanical energy conversion principles, characteristics and applications of transformers, DC machines, synchronous and induction machines. Introduction to electric power systems. Laboratory fee: $25.00. (Prerequisite: EE 204.)

### EE 311 3 Credits
**Applied Engineering Electromagnetics (3+0)**
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. (Prerequisites: PHYS 211, MATH 302, EE 204.)

### EE 312 3 Credits
**Electromagnetic Waves and Devices (3+0)**
Theory and design of antennas, waveguides and other periodic structures. Antenna arrays, broadband design techniques and related topics. Theory and design of practical communication links. (Prerequisites: EE 311, 331, MATH 302.)

### EE 331 1 Credit
**High Frequency Lab (0+3)**
Laboratory experiments in transmission lines, impedances, bridges, scattering parameters, hybrids, and waveguides. Laboratory fee: $25.00. (Corequisite: EE 311.)

### EE 332 4 Credits
**Electromagnetics Laboratory (0+3)**
Use of Maxwell's equations in analysis of waveguides, cavity resonators, transmission lines, antennas, and radio propagation. Laboratory fee: $25.00. (Corequisite: EE 312.)

### EE 333 4 Credits
**Physical Electronics (3+3)**
Basic properties of semiconductors. Principles of semiconductor devices, diodes, transistors, and integrated circuits. Laboratory fee: $25.00. (Prerequisite: EE 204.)

### EE 334 4 Credits
**Electronic Circuit Design (3+3)**
Application of semiconductor devices in circuit design in computation, automatic control, and communication. Laboratory fee: $25.00. (Prerequisite: EE 333.)

### EE 341 4 Credits
**Computer Organization I (3+3)**
Modular structure of computer systems; hardware and firmware techniques of realizing logical functions and types and purposes of peripherals with methods of interface. Laboratory fee: $25.00. (Prerequisites: CS 201 and one year of college physics.)

### EE 342 4 Credits
**Computer Organization II (3+3)**
Techniques of constructing input/output device drivers, 8 and 16 bit microprocessor organization, operation and programming, and central processor unit microprogrammable bit slice devices. Laboratory fee: $25.00. (Prerequisite: EE 341.)

### EE 353 3 Credits
**Circuit Theory I (3+0)**
Transient analysis by Laplace transform, state variable, and Fourier methods, filter networks, and computer aided analysis. (Prerequisite: EE 204.)

### EE 354 3 Credits
**Engineering Signal Analysis (3+0)**
Analysis of both continuous and discrete-time signals and systems. Fundamentals and applications of probability, statistics and stochastic processes to linear, time-invariant systems. Development and applications of convolution, z-transform and Laplace transform theory to filters, modulation, multiplexing, sampling, interpolation, and related processes. (Prerequisites: EE 353, MATH 302.)

### EE 404 4 Credits
**Electrical Power Systems (3+3)**
Alternate energy sources, transmission system components, elements of control, system protection, power flow, and computer-aided power flow analysis. Laboratory fee: $25.00. (Prerequisite: EE 303.)

### EE 406 4 Credits
**Electrical Power Engineering (3+3)**
Symmetrical and unsymmetrical faults, protective relaying, economic operation of power systems, dynamic power system stability, and computer aided fault and transient stability analysis. Laboratory fee: $25.00. (Prerequisite: EE 404 or equivalent.)
EE 434 3 Credits  Spring
Instrumentation Systems (2+3)
Analysis and design of instrumentation systems: static and dynamic characteristics; accuracy, noise, reliability; sensors; signal conditioning; typical measurement systems. Laboratory fee: $25.00. (Prerequisites: EE 334, 354, 442.)

EE 442 4 Credits  Fall
Digital Systems Analysis and Design I (3+3)
Combination and sequential logic implementation with Medium Scale Integration (MSI) Algorithmic State Machine (ASM) design and implementation with Medium and Large Scale Integration (LSI) and microprocessors; Central Processor Unit (CPU) analysis and implementation with microprogrammable, “bit-slice” hardware; basic microcomputer input/output (I/O); digital data transmission techniques. Laboratory fee: $25.00.** (Prerequisites: EE 204, 333; EE 333 may be taken concurrently.)

EE 443 4 Credits  Spring
Digital Systems Analysis and Design II (3+3)
Microcomputer interfacing; timing; transmission line effects in logic design; analog-digital and digital-analog converters; basic digital filtering with microcomputers; 8-bit and 16-bit microprocessor organization, operation and programming; computer peripherals; digital signal processing hardware. Laboratory fee: $25.00.** (Prerequisite: EE 442.)

EE 451 4 Credits  Fall
Discrete Fourier Transform (DFT) analyses and applications; FFT implementations; discrete convolution/correlation/statistical theory with application; error analysis and noise analysis; FIR/IIR filter design and implementation techniques. Laboratory fee: $25.00.** (Prerequisite: EE 354 or equivalent.)

EE 454 4 Credits  Spring
Advanced Digital Systems Application and Design (3+3)
Techniques in the areas of high speed signal processing, process control, data transmission and speech synthesis. Emphasis on recent developments and custom design. Laboratory fee: $25.00. (Prerequisites: EE 442 and senior standing.)

EE 461 4 Credits  Fall
Communication Systems (3+3)
Theory and implementation of communication systems. Measurement of modulation, noise, channel spectrum, satellite link budget, and microwave path design. Laboratory fee: $25.00. (Prerequisites: EE 354 and senior standing.)

EE 462 4 Credits  Spring
Communication Systems (3+3)
Theory and practice. Introduction to probability, statistics, and information theory, systems design and laboratory experience in analog and digital communication. (Prerequisites: EE 354, 334.)

EE 464 3 Credits  Spring
Communication Networks (2+3)

EE 471 4 Credits  Spring
Fundamentals of Automatic Control (4+0)
Linear system representation by transfer functions and state variables. Feedback, time and frequency response of linear systems. Identification. Controllability and observability. Stability by Routh-Hurwitz criterion and frequency plane methods. Specifications of higher order linear systems. System design and compensation: introduction to sampled data systems. (Prerequisites: EE 353 and MATH 302.)

EE 481 3 Credits  Fall
Electronics and Instrumentation for Scientists and Engineers I (2+3)
Theory and design of solid state electronic circuitry for practicing engineers and scientists in the physical and life sciences. Diodes, transistors, field effect transistors, integrated circuits, and other solid state devices. Analysis of modern electronic systems. Laboratory fee: $25.00. (Prerequisites: 1 year of college physics; corequisite: MATH 200.)

EE 482 3 Credits  Spring
Electronics and Instrumentation for Scientists and Engineers II (2+3)
Instrumentation theory and concepts, transducers, data transmission, recording, and reducing. Digital electronics. Electrical measurement of physical variables and error analysis. Laboratory fee: $25.00. (Prerequisite: EE 481 or equivalent.)

EE 603 3 Credits  As Demand Warrants
Advanced Electric Power Engineering (3+0)

EE 604 3 Credits  As Demand Warrants
Electric Power System Modeling and Transients (3+0)

EE 610 3 Credits  Alternate Fall
Linear Systems (3+0)

EE 632 3 Credits  As Demand Warrants
Quantum Electronics (3+0)

EE 635 3 Credits  As Demand Warrants
Advanced Electronic Circuit Design (3+0)

EE 643 4 Credits  Fall
VLSI in Computer System Design (3+3)

EE 652 3 Credits  Alternate Spring
Adaptive Systems and Neural Networks (3+0)

EE 662 3 Credits  As Demand Warrants
Communication Theory (3+0)

EE 664 3 Credits  As Demand Warrants
Data Communication Techniques (3+0)

EE 668 3 Credits  As Demand Warrants
Microwave Systems Engineering (3+0)

EE 671 3 Credits  As Demand Warrants
Digital Control Systems (3+0)

Electronics Technology

ELT 101 4 Credits  As Demand Warrants
Basic Electronics: DC Physics (3+0)
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.

ELT 102 4 Credits  As Demand Warrants
Basic Electronics: AC Physics (3+0)
Principles of alternating current, vectors, phasor relationships, inductive and capacitive reactance, and impedance. AC circuit analysis, series and parallel resonant circuits. Transformers, network analysis.

ELT 108 3 Credits  As Demand Warrants
Arithmetic for DC Circuits (3+0)
Review of arithmetic. Selected topics in algebra, trigonometry, graphs, analytic geometry, waveform analysis and decibel calculations. Calculations necessary for DC theory and continued study of electronics.

ELT 109 3 Credits  As Demand Warrants
Arithmetic for AC Circuits (3+0)
Selected topics in algebra, trigonometry, graphs analytic geometry, waveform analysis and decibel calculations. Calculations necessary for AC theory and continued study of electronics.

ELT 111 1-3 Credits  As Demand Warrants
Amateur Radio Licensing (1-3+0)
Overview of amateur radio. Code and radio theory provided for the Novice and General Amateur License Examination. Community emergency communications, net operations, repeaters, and public classroom applications for those already licensed.

ELT 122 3 Credits  As Demand Warrants
Introduction to Electronic Devices (3+0)
Fundamentals of vacuum tubes and transistors. Emphasis on types of construction, interpretation of design parameters and applicability to electronic circuits.
Emergency Medical Technology

EMTT 103 3 Credits As Demand Warrants
EMT: Emergency Trauma Training First Responder (3+0)
Training in emergency medical care. Proficiency in basic emergency medical care to victims of emergencies and in minimizing patient suffering and prevention of further injury. Materials fee: $10.00-$15.00.

EMTT 110 1 Credit As Demand Warrants
EMT: Cardiopulmonary Resuscitation (1+0)
Emergency treatment of breathing and/or heart failure. Based on the Basic Life Support course offered by the American Heart Association.

EMTT 119 4 Credits As Demand Warrants
EMT: Emergency Medical Technician I (4+4)
Techniques to administer life-saving first aid and operate an ambulance. Upon successful completion of this course, the student will meet the Alaska requirements for certification as an Emergency Medical Technician. Materials fee: $115.00.

EMTT 120 4 Credits As Demand Warrants
EMT: Emergency Medical Technician - Ambulance (4+4)
Basic patient assessment, advanced shock management, trauma management, CPR, extrication and immobilization techniques. Includes 120 hours of didactic and practical skills training similar to EMTT 119, but emphasizing ambulance techniques.

EMTT 121 2 Credits As Demand Warrants
EMT: Emergency Medical Technician II (2+0)
Improvement of EMT skills in trauma intervention for the seriously injured patient through advanced techniques in fluid therapy. Use of MAST pants, utilization of specific drug therapy and advanced airway care covered. Materials fee: $65.00.

EMTT 123 1 Credit As Demand Warrants
Emergency Medical Technician III (1+0)
Introduction to basic cardiac anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic cardiac arrhythmias, use of defibrillator, monitor, use of morphine, lidocaine, and epinephrine. 1:1000. Recognition and treatment of extremity pain due to isolated trauma. (Prerequisite: Successful completion of EMTT 121 or EMT II standing.)

EMTT 127 1 Credit As Demand Warrants
EMT: Emergency Medical Technician - Refresher (1+0)
Review of basic skills and emergency medical procedures at the Basic EMT level. Covers emergency medical care procedural changes, newly developed equipment and its use, changes in State licensure or other medico-legal requirements.

EMTT 247 A, B 2 Credits As Demand Warrants
A: Basic Survival Skills and Techniques in Northern latitudes. B: Basic survival skills and techniques needed in northern latitudes. Prepares students to face survival situations in an arctic environment and enables them to maintain equipment, skills, and attitudes in a state of readiness. Includes 1 credit in lecture, 1 in practical; students must take lecture portion to be eligible for practicum.

Engineering Science

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

ESM 401 3 Credits As Demand Warrants
Construction Cost Estimating and Bid Preparation (3+0)
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. Laboratory fee: $20.00.

ESM 450 3 Credits Spring
Economic Analysis and Operations (3+0)
Fundamentals of engineering economy, project scheduling, estimating, legal principles, professional ethics, and human relations. Laboratory fee: $20.00. (Not offered for credit toward the Master of Science in Engineering Management or Science Management. Prerequisite: ESM 201 and senior standing in engineering or permission of instructor.)

ESM 601 3 Credits Fall
Engineers in Organizations (3+0)

ESM 605 3 Credits Fall
Engineering Economy (3+0)

ESM 608 3 Credits Fall
Legal Principles for Engineering Management (3+0)

ESM 609 3 Credits Alternate Fall
Project Management (3+0)

ESM 620 3 Credits Every Third Semester
Statistics for ESM (3+0)

ESM 621 3 Credits Spring
Operations Research (3+0)

ESM 623 3 Credits Fall, Spring
Computer Programming for Engineering Managers (3+0)

ESM 684 3 Credits Spring and Fall
Engineering Management Project (3+0)

Engineering and Science Management

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

ES 101 2 Credits Fall, Spring
Descriptive Geometry for Engineers (1.5+4)
Orthographic, isometric, oblique and perspective drawing, descriptive geometry, graphic solutions, computer graphics and computer aided drawing (CAD). Laboratory fee: $25.00. (Corequisite: MATH 107.)

ES 201 3 Credits Fall, Spring
Computer Techniques (2+3)
Basic computer programming, FORTRAN and BASIC, with applications from all fields of engineering. Laboratory fee $10.00. (Prerequisites: MATH 107 and 108 or enrollment in MATH 200.)

ES 208 4 Credits Spring
Engineering Mechanics (3+4)
Engineering-oriented coverage of statics and dynamics. Vector methods used where appropriate. (Prerequisites: MATH 201 and PHYS 211.)

ES 209 3 Credits Fall, Spring
Statics (3+4)
Forces 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: MATH 201; corequisite: PHYS 211.)

ES 210 3 Credits Fall, Spring
Dynamics (3+4)
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. (Prerequisite: ES 208.)

ES 220 3 Credits Fall
Engineering Analysis (3+0)
Application of mathematical tools to typical engineering design problems. Selected topics from all fields of engineering. (Prerequisites: MATH 302, ES 210.)

ES 237 3 Credits Fall
Elements of Electrical Engineering (2+3)
Elementary circuits and theorems, natural, forced and steady state response, principles of electronics, circuit models and system parameters, and characteristics of AC and DC machines. Laboratory fee: $25.00. (Prerequisite: MATH 202 or permission of instructor.)
ES 308  3 Credits  Spring  Instrumentation and Measurement (2+3)
Instrumentation theory and concepts of digital and analog devices, transducers, data sensing transmission, recording, and display, instrumentation system, remote sensing, and hostile environmental conditions. Laboratory fee: $25.00. (Prerequisite: ES 307.)

ES 311  3 Credits  Fall, Spring  Mechanics of Materials (2+3)
Analysis of internal forces in members subjected to axial, torsional, and flexural loads, singly and in combination. Stress-strain relationship and material property definitions: shear and moment diagrams. Mohr’s Circle. Applications include beams, columns, connections, indeterminate cases. (Prerequisites: ES 208 or 209 and MATH 201.)

ES 341  4 Credits  Fall, Spring  Fluid Mechanics (3+4)
Statics and dynamics of fluids; energy and momentum principles; dimensional analysis; flow in open channels, closed conduits and around submerged bodies. Laboratory fee: $10.00. (Prerequisites: MATH 201 and ES 208 or 210.)

ES 346  3 Credits  Fall, Spring  Basic Thermodynamics (3+0)
Thermodynamic systems, processes, properties, and cycles. Fundamental principles of thermodynamics (first and second laws), and elementary applications. (Prerequisites: MATH 201 and PHYS 211.)

ES 429  3 Credits  Fall  Ethics and Liability in Professional Practice (2+3)
The professional, moral, ethical, and legal responsibilities of a professional in today’s society and workplace. (Prerequisite: Senior or graduate standing or consent of instructor.)

English

The written communication requirement for any baccalaureate degree is the successful completion of ENGL 111X and ENGL 211X or 213X or equivalent.

DEVELOPMENTAL ENGLISH

DEVE 060  3 Credits  As Demand Warrants  Elementary Exposition (3+0)
Intensive work in the process of writing and revising to improve one’s writing skills. Placement by examination.

DEVE 068  1-3 Credits  Fall, Spring  English Skills Laboratory (0+3-9)
Individualized instruction in language skills. Open entry/open exit, one credit lab modules in spelling/vocabulary, writing, and grammar usage. Enrollment in one or more based on diagnosed need or desire; may be repeated. Counts as elective credit only; does not fulfill degree requirements in written communications or humanities.

DEVE 070  3 Credits  As Demand Warrants  Preparatory College English (3+0)
Instruction in writing to improve students’ fluency and accuracy and communication skills. Preparation for ENGL 111. Placement by examination or student decision. Materials fee: $5.00.

A student may elect to fulfill one half of the composition requirement by completing credit by examination in one of the required English courses. Permission of the Director of Communications in the English Department is required to begin all challenge procedures.

Required composition courses may also be taken through University of Alaska Fairbanks correspondence study.

ENGLISH

ENGL 104  3 Credits  As Demand Warrants  Institute on Language & Thought (3+0)
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.

ENGL 111X  3 Credits  Fall, Spring  Methods of Written Communication (3+0)
Expository prose, including topic development. Practice in developing, organizing, writing, revising, and editing compositions. Materials fee: $8.00. Also available via Independent Learning. (Prerequisite: Placement examination or DEVE 070.)

ENGL 190HX  3 Credits  Fall, Spring  Honors English Composition (3+0)
Extensive readings in a variety of disciplines. Frequent writing assignments addressing a wide range of topics for specific purposes and audiences. Emphasis upon writing as a tool for learning across the curriculum. (Prerequisite: Admission to the Honors Program or recommendation of instructor.)

ENGL 200X  4 Credits  Fall, Spring  World Literature (3+4) h
(Same as FL 200X)
Introduction to the reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, storytelling and drama. Students will gain an understanding of cultural differences and universals in text from American, American minority, Western European and non-Western sources. Specific content to be announced at time of registration. Courses may be repeated for credit when content varies. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 211X  3 Credits  Fall, Spring  Intermediate Exposition, with Modes of Literature (3+0)
Instruction in writing through close analysis of literature. Research paper required. Materials fee: $8.00. Also available via Independent Learning. (Prerequisites: Sophomore standing and completion of ENGL 111X or its equivalent.)

ENGL 212  3 Credits  As Demand Warrants  Business, Grant, and Report Writing (3+0)
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. (Prerequisite: ENGL 111X.)

ENGL 213X  3 Credits  Fall, Spring  Intermediate Exposition (3+0)
Instruction in writing through close analysis of expository prose from the social and natural sciences. Research paper required. Materials fee: $8.00. (Prerequisite: Sophomore standing and completion of ENGL 111X or its equivalent.)

NOTE: Neither ENGL 211X nor ENGL 213X can be used as a prerequisite for any other course or as a part of any other course of study. However, either one of them will fulfill the second half of this requirement in written communication for the baccalaureate degree. A student who has taken one of these courses before declaring a major in which the other course may be considered more appropriate, or a student who changes major from a field in which one of these courses is considered more appropriate than the other, will not be required to take the other course.

ENGL 215  3 Credits  Spring  Introduction to Poetry (3+0) h
Analysis and appreciation of various kinds of writing in verse (lyric, narrative, and other poetry), including the terminology used to describe poetic techniques. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 216  3 Credits  Fall, Spring  Introduction to Fiction (3+0) h
Analysis and appreciation of selected novels and short stories, including the terminology used to describe fictional techniques. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 217  3 Credits  Spring  Introduction to the Study of Film (2+2) h
(Same as JB 217)
A broad historical survey of cinematic art with emphasis on its humanistic and artistic aspects. (Prerequisite: ENGL 111X.)

ENGL 218  3 Credits  Spring  Themes in Literature (3+0) h
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. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 230  3-7 Credits  Fall
ENGL 231  3-7 Credits  Spring
English Language Proficiency (3+Var.)
Intensive listening, speaking, reading, and writing in English. Especially recommended for all students for whom English is a foreign language. These courses do not meet general degree requirements in written communications and are not classified as humanities. (Prerequisites: Open only to students for whom English is a foreign language. Permission of instructor required.)

COURSE DESCRIPTIONS—ENGLISH / 143
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Duration</th>
<th>Title</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ENGL 271</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Introduction to Creative Writing - Fiction (3+0) h</td>
<td>Form and techniques of fiction for beginning students; discussion of students’ work in class and in individual conferences. Materials fee: $10.00. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 272</td>
<td>3</td>
<td>Fall</td>
<td>Introduction to Creative Writing - Poetry (3+0) h</td>
<td>Forms and techniques of poetry for beginning students; discussion of students’ work in class and in individual conferences. Materials fee: $5.00. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 290H</td>
<td>2</td>
<td>Fall</td>
<td>Summer Reading Program (Honors) (2+0) h</td>
<td>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. (Prerequisite: ENGL 111X or enrollment in the Honors Program.)</td>
</tr>
<tr>
<td>ENGL 301</td>
<td>3</td>
<td>Fall</td>
<td>Continental Literature in Translation: From the Ancient World through the Renaissance (3+0) h</td>
<td>Readings in Greek plays, <em>The Iliad</em>, <em>The Aeneid</em>, Bible, Dante: the classical background out of which western literary tradition has risen. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 306</td>
<td>3</td>
<td>Spring</td>
<td>Survey of American Literature (3+0) h</td>
<td>American literature as reflected in its major writers, including works representative of American Calvinism, Rationalism, Transcendentalism, Romanticism, Realism, Naturalism, and Modernism. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>3</td>
<td>Fall</td>
<td>Survey of British Literature: Beowulf to the Romantic Period (3+0) h</td>
<td>Survey of writers and works in Old and Middle English, including Chaucer, through Elizabethan period (Shakespeare), Restoration, and Neoclassic Period of the 18th Century. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 309</td>
<td>3</td>
<td>Spring</td>
<td>Survey of British Literature: Romantic Period to the Present (3+0) h</td>
<td>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. (Prerequisite: ENGL 111X or permission of instructor.)</td>
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<tr>
<td>ENGL 310</td>
<td>3</td>
<td>Spring</td>
<td>Literary Criticism (3+0) h</td>
<td>History and principles of literary criticism, from earliest days to present. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 313W</td>
<td>3</td>
<td>Spring</td>
<td>Writing Non-Fiction Prose (3+0) h</td>
<td>Instruction in writing for students who wish to develop proficiency in organizing and composing essays on factual material in which they have genuine interest. Readings and research paper required. Course does not fulfill the second half of the general degree requirement. (Prerequisite: Junior standing, ENG 211X or 213 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 314W</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Technical Writing (2+0+1) h</td>
<td>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. Materials fee: $3.00. (Prerequisites: Junior standing and ENG 211X or 213X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 318</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Modern English Grammar (3+0) h</td>
<td>Structure of current English as seen through traditional and contemporary grammatical theories. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 340</td>
<td>3</td>
<td>Fall</td>
<td>Contemporary Native American Literature (3+0)h</td>
<td>(Same as ANS 340) Contemporary Native American writing in English, including novels, short stories, poetry, and plays. Examples of Native American film when related to a writing. Works discussed in relation to cultural context and interpretations. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 349</td>
<td>3</td>
<td>Fall</td>
<td>Narrative Art of Alaska Native Peoples (in English Translation) (3+0) h</td>
<td>(Same as ANS 349) Traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Bibliography, Alaska Native epics and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111X or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 350</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Literature of Alaska and the Yukon Territory (3+0) h</td>
<td>Representative fiction, verse, and non-fiction dealing with Alaska and the Yukon Territory. Also available via Independent Learning. (Prerequisite: ENGL 111X or permission of instructor.) Next offered: 1992-93.)</td>
</tr>
<tr>
<td>ENGL 371OW</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Intermediate Creative Writing (3+0) h</td>
<td>Practice and guidance in writing fiction, poetry, drama, and essays. Students' work read and discussed in class and in conferences with the instructor. Close study of the techniques of established writers. Materials fee: $10.00. (Prerequisite: ENGL 271 or ENGL 272 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 403OW</td>
<td>3</td>
<td>Every Third Spring</td>
<td>American Realism (3+0) h</td>
<td>American literature of the mid-nineteenth century; Poe through Whitman. (Prerequisite: ENGL 111X or permission of instructor. ENGL 306 recommended but not required. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>ENGL 404</td>
<td>3</td>
<td>Every Third Spring</td>
<td>American Realism (3+0) h</td>
<td>American literature from the Civil War to World War I: Twain through James. (Prerequisite: ENGL 111X or permission of instructor. ENGL 307 desirable but not required. ENGL 306 desirable but not required. Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ENGL 405</td>
<td>3</td>
<td>Every Third Fall</td>
<td>British Writers of the 19th Century: Romantic Period (3+0) h</td>
<td>English literary romanticism including authors such as Byron, Keats, Shelley, Coleridge, Wordsworth, Austen, the Bronte sisters, and Scott. (Prerequisite: ENGL 111X and junior standing or permission of instructor. ENGL 308 desirable but not required. Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ENGL 406</td>
<td>3</td>
<td>Every Third Fall</td>
<td>British Writers of the 19th Century: Victorian Period (3+0) h</td>
<td>Impact of industrialization, social reform, religious controversy, and philosophical attitudes on literature. Authors to include (but not limited to): Browning, Tennyson, Thackeray, Eliot, Arnold, Dickens, Hazlitt, Ruskin, and Meredith. (Prerequisite: ENGL 111X or permission of instructor. ENGL 309 desirable but not required. Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ENGL 407</td>
<td>3</td>
<td>Every Third Spring</td>
<td>British Writers of the Restoration and 18th Century: Neo-Classical Period (3+0) h</td>
<td>Developments in drama, verse, and prose reflecting new forces in government, religion, and society during the Augustan Age. Attention to the mode of satire and to the fashion of sentimentalism in all genres. Authors to include (but not limited to): Dryden, Dods, Addison, Steele, Swift, Pope, Johnson, Boswell, Goldsmith, and Sheridan. (Prerequisites: ENGL 111X and permission of instructor. ENGL 309 recommended. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>ENGL 408</td>
<td>3</td>
<td>Every Third Spring</td>
<td>American Origins (3+0) h</td>
<td>Writers who contributed to the development of a national literary identity: Bradford through Cooper. (Prerequisites: ENGL 111X and junior standing or permission of instructor. ENGL 306 recommended but not required. Next offered: 1993-94.)</td>
</tr>
<tr>
<td>ENGL 414W</td>
<td>3</td>
<td>Fall</td>
<td>Research Writing (3+0) h</td>
<td>Practice in reporting primary and secondary research in the forms and styles appropriate to the student's field. Preference given to seniors. (Prerequisites: ENGL 111X and 211X or 213X or their equivalent.)</td>
</tr>
<tr>
<td>ENGL 421</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Chaucer and His Age (3+0) h</td>
<td>Major poetry of Chaucer and his contemporaries, with emphasis on The Canterbury Tales, and survey of criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>ENGL 422W</td>
<td>3</td>
<td>Fall</td>
<td>Shakespeare: History Plays and Tragedies (3+0) h</td>
<td>Major chronicle plays and tragedies, including significant criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required.)</td>
</tr>
</tbody>
</table>
ENGL 425W 3 Credits Spring
Shakespeare: Comedies and Non-Dramatic Poetry (3+0) h
Major comedies and non-dramatic poems, including significant criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required.)

ENGL 426 3 Credits Every Third Fall
Milton (3+0) h
Major poetry and prose, and survey of Miltonian criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1993-94.)

ENGL 444W 3 Credits Every Third Spring
Fiction in Translation (3+0) h
Major fiction in English translation. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1993-94.)

ENGL 445 3 Credits Alternate Fall
20th-Century Drama: From Chekhov to Ionesco (3+0) h
The major dramatists and their achievements. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1992-93.)

ENGL 446 3 Credits Alternate Spring
Major Modern and Contemporary Poetry (3+0) h
Yeats to the present. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1991-92.)

ENGL 447 3 Credits Alternate Fall
20th-Century British Prose (3+0) h
Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1991-92.)

ENGL 448 3 Credits Alternate Spring
20th-Century American Prose (3+0) h
Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1992-93.)

ENGL 452 3 Credits Every Third Fall
The British Novel to 1900 (3+0) h
Origin and development of the novel with concentration on significant novelists from Daniel Defoe to Thomas Hardy. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1993-94.)

ENGL 462 3 Credits Alternate Spring
Applied English Linguistics (3+0) h
Topics(s) for each offering of the course are announced. Examples are teaching English as a second language, dialects and education, dictionaries, stylistics, and composition. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1991-92.)

ENGL 471W 3 Credits Fall, Spring
Undergraduate Writers' Workshop (3+0) h
Discussion of craft and techniques and student work. For advanced students who prepare manuscript as a final project. May be repeated one time for credit. Materials fee: $10.00. (Prerequisite: ENGL 371 or permission of instructor.)

ENGL 472 3 Credits Alternate Spring
History of the English Language (3+0) h
Origin and development of the English language from prehistoric times to the present. (Prerequisite: ENGL 111X or permission of instructor. ENGL 318 or a linguistics course is desirable, but not required. Next offered: 1991-92.)

ENGL 485 3 Credits Alternate Spring
Teaching Composition in the Schools (3+0)
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: Completion of university composition requirement with grade of B or higher, or permission of instructor. Next offered: 1991-92.)

ENGL 601 3 Credits Spring
Bibliography, Methods, and Criticism (3+0)

ENGL 602 3 Credits As Demand Warrants
Studies in British Literature: Old and Middle English (3+0)

ENGL 603 3 Credits Every Third Fall
Studies in British Literature: Renaissance and 17th Century (3+0)

ENGL 604 3 Credits

ENGL 607 3 Credits Every Third Spring
Studies in British Literature: Restoration, 18th and 19th Centuries (3+0)

ENGL 608 3 Credits Every Third Spring
Studies in British Literature: 20th Century (3+0)

ENGL 609 3 Credits Every Third Spring
Studies in American Literature: Colonial Period and 19th Century (3+0)

ENGL 612 3 Credits Every Third Fall
Studies in American Literature: 20th Century (3+0)

ENGL 620 3 Credits Alternate Fall
Images of the North (3+0)
(Same as NORS 620)

ENGL 651 3 Credits Alternate Spring
Internship in Publishing (3+1)

ENGL 671 Credits Arr.
Writers' Workshop
Fall, Spring

ENGL 673 3 Credits Professional Writing Workshop (3+0)

ENGL 681 3 Credits Forms of Poetry (3+0)

ENGL 682 3 Credits Forms of Fiction (3+0)

ENGL 683 3 Credits Forms of Drama (3+0)

ENGL 684 3 Credits Forms of Non-Fiction Prose (3+0)

ENGL 685 3 Credits Teaching College Composition (3+0)

ENGL 687 3 Credits Writing Professional Prose (3+0)

ENGL 688 3 Credits Audiovisual Script Writing (3+0)

ENGL 689 3 Credits Editing Prose (3+0)

ENGL 692 Credits Arr.
Graduate Seminar
Fall, Spring

ESLG 051 1-3 Credits As Demand Warrants
Speaking English as a Second Language
This class provides opportunity to engage 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.

ESLG 061 1-3 Credits As Demand Warrants
Reading English as a Second Language
Language experience approach and other methods are used to increase students' abilities and to build their confidence in reading English as it is encountered everyday. For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English. May be repeated up to nine credits.

ESLG 071 1-3 Credits As Demand Warrants
Writing English as a Second Language
This class provides an opportunity to develop 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.
Environmental Quality Engineering/Science

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESK 101</td>
<td>5 credits</td>
<td>Elementary Yup'ik Eskimo (3+0) h Introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to both speakers and non-speakers. (Prerequisite: ESK 103 or 105.)</td>
</tr>
<tr>
<td>ESK 109</td>
<td>3 credits</td>
<td>Yup'ik Orthography (3+0) h 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. (Prerequisite: Demonstrated conversational Yup'ik skills.)</td>
</tr>
<tr>
<td>ESK 111</td>
<td>5 credits</td>
<td>Elementar Inupiaq Eskimo (5+0) h 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.</td>
</tr>
<tr>
<td>ESK 115</td>
<td>1-3 credits</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ESK 116</td>
<td>1-3 credits</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ESK 117</td>
<td>1 credit</td>
<td>Conversational Inupiaq (1+3) h 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. (Prerequisite: ESK 115 for 116.)</td>
</tr>
<tr>
<td>ESK 118</td>
<td>3 credits</td>
<td>Inupiaq Literacy (3+0) h Literacy training for speakers of Alaskan Inupiaq. Instruction in learning to read and write the language.</td>
</tr>
<tr>
<td>ESK 130</td>
<td>3 credits</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ESK 131</td>
<td>1-3 credits</td>
<td>Beginning Yup'ik Grammar (3+0) h Literacy and grammatical analysis of the Central Yup'ik language are introduced in this course. Both Yup'ik speakers and non-speakers are eligible since the framework for learning to speak and write the language is offered. Considerations are given to dialect differences. (Prerequisite: ESK 103 or basic conversational Yup'ik skills.)</td>
</tr>
<tr>
<td>ESK 153</td>
<td>1-3 credits</td>
<td>As Demand Warrants</td>
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<tr>
<td>ESK 156</td>
<td>1-3 credits</td>
<td>As Demand Warrants</td>
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<tr>
<td>ESK 158</td>
<td>1-3 credits</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ESK 160</td>
<td>1 credit</td>
<td>Conversational Siberian Yup'ik (1+3) h Introductory courses for students who wish to acquire the ability to speak in Siberian Yupik, the language of St. Lawrence Island and parts of the Chukchi Peninsula in Siberia. Students first learn to understand simple spoken language, then to speak simple Siberian Yupik, developing a beginning level of communicative competence in the language.</td>
</tr>
<tr>
<td>ESK 165</td>
<td>1-3 credits</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ESK 201</td>
<td>3 credits</td>
<td>Yup'ik Made Easy III (3+0) h Continuation of ESK 101 and 102. Increasing emphasis on speaking, reading, and writing. (Prerequisite: ESK 102 or instructor permission.)</td>
</tr>
<tr>
<td>ESK 202</td>
<td>3 credits</td>
<td>Intermediate Yup'ik (3+0) h A continuation of ESK 103 and 104 using TPR (Total Physical Response) method. Reading and writing are covered indirectly; the focus is on teaching comprehension of the language in everyday situations. Vocabulary from previous classes will be briefly reviewed. (Prerequisite: ESK 104 or instructor permission.)</td>
</tr>
<tr>
<td>ESK 203</td>
<td>3 credits</td>
<td>As Demand Warrants</td>
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<tr>
<td>ESK 205</td>
<td>3 credits</td>
<td>Regaining Fluency in Yup'ik (3+0) h A continuation of ESK 104 and 106 using TPR (Total Physical Response) method. Students learn the skills of spelling, reading, and writing words in Siberian Yupik, which are the fundamentals of basic literacy. (Prerequisite: Ability to speak Siberian Yupik or instructor permission.)</td>
</tr>
<tr>
<td>ESK 206</td>
<td>3 credits</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ESK 208</td>
<td>3 credits</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>ESK 209</td>
<td>3 credits</td>
<td>Yup'ik Composition (3+0) h 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. (Prerequisite: Permission of instructor.) Each person must be evaluated for language capabilities.</td>
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Eskimo

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ESK 201</td>
<td>3 credits</td>
<td>Yup'ik Made Easy (3+0) h An entry level course to learn the Yup'ik language. The TPR (Total Physical Response) method, learning through commands and actions, is used. Focus is on teaching comprehension using daily situations, with speech being delayed until the student is ready. The study of grammar, reading and writing are not covered.</td>
</tr>
<tr>
<td>ESK 202</td>
<td>3 credits</td>
<td>Intermediate Yup'ik (3+0) h A continuation of ESK 103 and 104 using TPR (Total Physical Response) method. Reading and writing are covered indirectly; the focus is on teaching comprehension of the language in everyday situations.</td>
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<tr>
<td>ESK 203</td>
<td>3 credits</td>
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<tr>
<td>ESK 205</td>
<td>3 credits</td>
<td>Regaining Fluency in Yup'ik (3+0) h A continuation of ESK 104 and 106 using TPR (Total Physical Response) method. Students learn the skills of spelling, reading, and writing words in Siberian Yupik, which are the fundamentals of basic literacy. (Prerequisite: Ability to speak Siberian Yupik or instructor permission.)</td>
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<tr>
<td>ESK 206</td>
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<tr>
<td>ESK 209</td>
<td>3 credits</td>
<td>Yup'ik Composition (3+0) h 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. (Prerequisite: Permission of instructor.) Each person must be evaluated for language capabilities.</td>
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Yup'ik Made Easy (3+0) h An entry level course to learn the Yup'ik language. The TPR (Total Physical Response) method, learning through commands and actions, is used. Focus is on teaching comprehension using daily situations, with speech being delayed until the student is ready. The study of grammar, reading and writing are not covered. (Prerequisite: ESK 103 or 104.)
Fire Science

FSCI 101 3 Credits Fall
Introduction to Fire Science (3+0)
Career opportunities in fire protection and related fields; history of fire protection; fire loss analysis; public, quasi-public and private fire protection services; specific fire protection functions; fire chemistry and physics.

FSCI 105 3 Credits Spring
Fundamentals of Fire Prevention (3+0)
Organization and function of fire prevention programs, inspections, surveying, mapping, recognition of fire and life safety hazards, fire protection engineering, public fire education and enforcement. (Prerequisite: FSCI 101 or instructor permission.)

FSCI 107 3 Credits Spring
Municipal Fire Tactics and Strategy (3+0)
Principles of fire control through utilization of personnel, equipment and extinguishing agents. (Prerequisite: FSCI 101 or equivalent or permission of instructor.)

FSCI 111 3 Credits Fall
Fire Service Organization and Management (3+0)
Review of management, organization, planning, and supervision to meet the needs of the fire service with emphasis on the company officer's role. (Prerequisite: FSCI 101 or instructor permission.)

FSCI 115 3 Credits Spring
Fire Apparatus and Equipment (3+0)
Fire apparatus design, specifications and performance capabilities, effective utilization of apparatus in fire emergencies. (Prerequisite: FSCI 101 or instructor permission.)

FSCI 117 3 Credits Spring
Rescue Practices (3+0)
Rescue situations and techniques, emergency rescue equipment, automobile extraction, ventilation principles, aircraft emergency situations, structural rescue, water safety and emergency lifesaving principles. (Prerequisite: Advanced First Aid, EMTT 103 or 119 and membership in a fire department or rescue service.)

FSCI 121 3 Credits Alternate Spring
Introduction to Fire Chemistry and Physics (3+0)
Introduction to nomenclature, principles and procedures of chemistry as related to fire problems.

FSCI 123 3 Credits Alternate Fall
Fire Investigation (3+0)
Determining origin and cause of fires (mechanical, accidental, or incendiary) for structural, wildland and transportation incidents; fire effects on materials; related laws; recognizing and preserving evidence, interviewing witnesses and suspects, rules of arrest and detention procedures, and court discipline. (Prerequisites: FSCI 101 and membership in a fire or law enforcement agency, or permission of instructor.)

FSCI 151 3 Credits Spring
Wildland Fire Control I (3+0)
Designed to provide national certification for both entry-level and experienced fire fighters with fundamental knowledge of wildland fire organization, fire behavior, air operations, suppression methods, safety, the incident command system, portable pumps, water use, and chain saws.

FSCI 155 3 Credits Alternate Spring
Wildland Fire Behavior (3+0)
Provides fire behavior knowledge to determine basic input data for fire behavior calculations such as rate of spread, fire line intensity, flame length, and area/flow growth using fire behavior prediction systems. Prepare fire perimeter maps, assess and predict chances of extreme fire behavior conditions, assess fire line data and fire behavior estimations, identify fire suppression limitations, and make recommendations for fire line location and safe control tactics. (Prerequisite: FSCI 151 or instructor permission. Next offered: 1992-93.)

FSCI 156 3 Credits Alternate Spring
Fire Planning Function (3+0)
Provides an overview of the planning process, organizational relationships with other functions, use of planning matrix board, check-in and resource status procedures, evaluation, analysis and display of incident information, documentation, demobilization, use of technical specialist and components of an incident action plan. (Prerequisite: FSCI 151 or instructor permission. Next offered: 1991-92.)

FSCI 157 3 Credits Alternate Fall
Air Operations and Safety (3+0)
Basic use of aircraft in wildland fire operations including helicopter operations, types and capacities, helibase/helispot construction, logistics support and specialized missions. Fixed wing operations include establishment of air bases, retardant operations, aircraft fueling and paracargo support. Emphasis on aviation safety. (Prerequisite: FSCI 151 or instructor permission. Next offered: 1991-92.)

FSCI 158 3 Credits Alternate Fall
Fire Operations Function (3+0)
Overview of the operations function including organization; implementation of the incident action plan; tactical use of crews, engines, bulldozers, and appointed supervisors in accordance with incident control; utilization of fixed wing and rotor wing aircraft. Functional positions of crew boss, staging area manager and strike team leader covered. (Prerequisites: FSCI 151, 155, 157 and 254, or instructor permission. Next offered: 1991-92.)

FSCI 161 3 Credits Alternate Fall
Fire Logistics Functions (3+0)
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, and medical unit leader. (Prerequisite: FSCI 151 or instructor permission. Next offered: 1992-93.)

FSCI 162 3 Credits Alternate Spring
Methods of Instruction for Fire Service Training (3+0)
Skills necessary to instruct fire service courses including adult education techniques, classroom setup, use of audio-visual equipment, presentation, and evaluation methods of students and instruction. (Next offered: 1992-93.)

FSCI 202 3 Credits Fall
Fire Hydraulics (3+0)
Review of applied mathematics; hydraulic principles; applications of formulas and calculations; water supply and distribution. (Prerequisites: FSCI 101 and satisfactory demonstration of basic math skills (pretest), or instructor permission.)

FSCI 204 3 Credits Fall
Hazardous Materials I (3+0)
Basic fire chemistry related to hazardous materials. Problems of health, fire reactivity, and special hazards as encountered by fire fighters, including the State Fire Service Training approved First Responder Operations Level course. (Prerequisite: Satisfactory demonstration of basic chemistry knowledge (pretest) or instructor permission.)
FSCI 205 3 Credits Spring  
Hazardous Materials II (3+0)  
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 65.15).  
(Prerequisite: FSCI 204 or instructor permission.)

FSCI 206 3 Credits Alternate Spring  
Building Construction for Fire Protection (3+0)  
Fundamentals of building construction as it relates to fire protection.  
(Prerequisite: FSCI 101 or employment or experience in related field, such as fire protection, insurance, construction architecture, or engineering. Next offered: 1992-93.)

FSCI 208 3 Credits Alternate Fall  
Fire Service Records and Reports (3+0)  
Use of records and reports. Involves knowledge and understanding of computers, ANFIRS reporting, maintenance of training, equipment apparatus records, writing reports, and managing documentation. (Prerequisite: FSCI 101 or instructor permission.)

FSCI 212 3 Credits Alternate Fall  
Building and Fire Codes (3+0)  

FSCI 214 3 Credits Alternate Spring  
Fire Protection Equipment and Systems (3+0)  
Portable fire extinguishing equipment, protection systems for specific hazards including sprinkler systems, halon, dry chemical, fire detection, and alarm systems. (Prerequisite: FSCI 101 or instructor permission. Next offered: 1991-92.)

FSCI 252 3 Credits Alternate Spring  
Wildland Fire Prevention, Investigation and Enforcement (3+0)  
Overview of wildland fire prevention including data collection, problem identification, report writing, action planning, fire reporting, fire cause determination, and enforcement of laws and ordinances, public fire education, and the economics of fire prevention. (Prerequisite: FSCI 151 or instructor permission. Next offered: 1991-92.)

FSCI 254 3 Credits Fall  
Wildland Fire Business Management (3+0)  
Fire business management objectives, including duties and responsibilities of fire finance sections relating to fire prevention and fire suppression activities. (Prerequisite: FSCI 151 or instructor permission.)

FSCI 256 3 Credits Alternate Fall  
Wildland Fire Planning and Multiple Use Management (3+0)  
Fire management and the role in a multiple use resource program. Includes prescribed and wild fire practices, environmental concerns, management goals and objectives, and prefire planning. (Prerequisite: FSCI 151, FSCI 155, or instructor permission. Next offered: 1991-92.)

FSCI 258 3 Credits Alternate Spring  
Prescribed Burning and Fuels Management (3+0)  
Compares use of different fuels. Evaluates benefits and effect of management practices. Includes prescribed fire procedures and objectives. (Prerequisites: FSCI 111, 155, 156, 262 and instructor permission. Next offered: 1991-92.)

FSCI 260 3 Credits As Demand Warrants  
Fire Research and Development (3+0)  
Research and development in the area of fire prevention, detection, prescribed burns, fire suppression, and post-suppression.

FSCI 262 3 Credits Alternate Fall  
Wildland Fire Control II (3+0)  
National certification instruction in tactics for fire line construction, use of hand crews, heavy equipment, water and engines, firing operations, wildland/urban interface and using combinations of resources. For trained and experienced wildland fire fighters. (Prerequisites: FSCI 151, 155, 157, 156, 254 or instructor permission. Next offered: 1992-93.)

FSCI 270 3 Credits Alternate Spring  
Incident Command Function (3+0)  
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 decision, providing information to the media, and managing the incident from initial attack of small, noncomplex fires to larger, more complex initial attack suppression organizations dealing with escape attack situations. (Prerequisites: FSCI 151, 155, 252 or instructor permission. Next offered: 1992-93.)

FISHERIES  
Fisheries courses are offered at both the Fairbanks Campus and the UAF Juneau Center for Fisheries and Ocean Science. Those offered only at Fairbanks are identified by the initial “F” following the course number. Courses offered only at Juneau are identified with a “J” following the course number. The frequency of offering is identified by location for those courses offered at both units.

FISH 101 3 Credits  
Introduction to Fisheries (3+0)  
Fairbanks, Spring  
A survey of the values, habitats, biology, ecology and management of fishes with particular reference to Alaskan fisheries and issues.

FISH 261F 3 Credits Fall  
Introduction to Seafood Science and Nutrition (3+0)  
As Demand Warrants  
Application of scientific and engineering principles in the harvesting, processing, preservation and marketing of Alaska's rich fisheries resources. For sophomore-level natural sciences/environmental studies students. (Prerequisites: CHEM 105 or BIOL 105 or consent of instructor.)

FISH 381 3 Credits As Demand Warrants  
Biological and Commercially Important Salmonid Fishes (3+0)  
Biota, life history and ecology of economically valuable salmonids. Management of salmonid fisheries. (Prerequisite: BIOL 427.)

FISH 382 4 Credits As Demand Warrants  
Biological and Commercially Important Marine Fishes (3+2)  
An overview of major marine fish resources of Alaska. Taxonomy, distribution, life history and ecological relationships of marine fishes, with emphasis on demersal fishes, early life history and the effects of fisheries on stocks. (Prerequisite: BIOL 222 [BIOL 209-J].)

FISH 383 4 Credits As Demand Warrants  
Biological and Commercially Important Invertebrates (3+3)  
Topics include the taxonomy, morphology, physiology and ecology of commercially important invertebrates. History of the management and fishery of the major species presented. Emphasis on Alaskan species. (Prerequisite: BIOL 222 [BIOL 209-J].)

FISH 400 3 Credits  
Fisheries Science (F 2+3; J 3+0)  
Juneau, Alternate Spring  
As Demand Warrants  
The general biology of fishes in relation to their management. Methods of collecting, analyzing, and interpreting field and laboratory data. (Prerequisite: one 200-level biology class. Corequisite: STAT 200 [STAT 373-J].)

FISH 401 3 Credits  
Fisheries Management (3+0)  
Fairbanks, Spring  
As Demand Warrants  
The general biology of fishes in relation to their management. Methods of collecting, analyzing, and interpreting field and laboratory data. (Prerequisite: BIOL 271. Next offered Juneau: 1993-94.)

FISH 418-F 4 Credits Alternate Fall  
Renewable Resource Management Systems (4+0)  
As Demand Warrants  
Principles, concepts and techniques of fisheries management in terms of their biological, economic, social and political aspects. Topics are stock and introductions, habitat manipulation, sustainable yield, regulation, management organizations and their responsibilities. Examples of several fisheries are used to clarify concepts and practices. (Prerequisite: BIOL 271. Next offered: 1992-93.)

FISH 420-F 3 Credits Alternate Fall  
Modeling, Simulation and Ecological Theory (3+0)  
As Demand Warrants  
Incorporation of formal models (mathematical, graphical and simulation) in fisheries and ecology. Nature and uses of modeling approaches; choice of assumptions; simulation techniques and model verification; examples and case histories. (Prerequisites: MATH 200, BIOL 271 [BIOL 261-J].)
Salmonids in both growth of salmon. Demonstration and use of field and laboratory techniques and model verification: examples and case histories. (Prerequisite: STAT 200 [STAT 373-1]. FISH 418 recommended. Next offered: 1992-93.)

Fish Culture (3+4)
Biological and technology of artificial propagation of salmonids. Reproduction, embryology, growth, nutrition, genetics and pathology of salmonids in both extensive (sea ranching) and intensive rearing system. Bioengineering of incubators, rearing containers, water diversion systems and other related topics. Laboratory exercises in measuring effects of environmental characteristics on development and growth of salmon. (Prerequisites: BIOL 222 [BIOL 209-1], CHEM 106, FISH 381. Next offered: 1991-92.)

Sampling Methods in Fisheries (2+2)
A review of standard and specialized sampling techniques in aquatic habitats. Basic sampling theory and statistical considerations, demonstration, use of field laboratory techniques, shipboard sampling. (Prerequisite: STAT 200 [STAT 373-1]. Next offered: 1991-92.)

Quantitative Fishery Science (2+3)

Fish Management (2+3)

Advanced Fisheries Management (2+3)

Fairbanks, Alaska Spring

Fish and Shellfish Diseases (3+3)

Advanced Fisheries Population Dynamics I (3+2)

Advanced Fisheries Population Dynamics II (3+2)

Fish Genetics (3+0)

Use of Electrophoresis in Fisheries (1+4)

Seafood Processing and Preservation (3+0)

Seafood Composition and Analysis (3+0)

Foreign Languages

How to Pronounce French, German, Italian, and Spanish (2+0)
Designed for students and others in radio, television, journalism, drama, music (esp. voice), etc. who want to pronounce French, German, Italian and Spanish correctly and with confidence. The method is practical and direct. Concrete examples are used.

World Literature (3+0)
(Same as ENGL 200X)
Introduction to the critical reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, storytelling 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. (Prerequisite: ENGL 111X or permission of instructor.)

World Economic Geography (3+0)
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.

Geography of the United States and Canada (3+0)
Regional geography of Anglo-America. Introductory systematic study of the area as a whole, followed by detailed study of the physical and cultural landscape forms, patterns, and associations of each major region in turn. Consideration of Anglo-America in current world economic and political geography. (Next offered: 1991-92.)

Elements of Physical Geography (3+0 or 3+4)
Analysis of process that form the physical environment and result physical patterns. Study of landscapes, climate, soils, water resources, vegetation, and their world and regional patterns. Optional laboratory for one additional credit. Also available via Independent Learning. (Offered every Spring at the Northwest Campus.)
GEOG 241  3 credits  Spring
Introduction to Geographic Information Systems (2+3)
(Prerequisite: NRM 241)
Review of hardware and software components, exploration of several
applications and introduction to data structures and basic functions.
Several different GIS systems considered. (Prerequisite: Knowledge of
PC's or Unix workstations desired.)

GEOG 301  3 Credits  Alternate Fall
Geographic Field Research Techniques
Theory and application of geographic methods of conducting field
investigations. Collection, analysis, synthesis, and interpretation and
reporting of data concerning the natural and human environments.
(Prerequisite: Permission of Instructor. Next offered: 1992-93.)

GEOG 302  3 Credits  Spring
Geography of Alaska (3+0) s
Regional, physical and economic geography of Alaska. Special consid-
eration of the state's renewable and nonrenewable resources, and of
plans for their wise use. Frequent class study of representative maps
and visual materials. Also available via Independent Learning. (Pre-
requisites: GEOG 101, 205.)

GEOG 305  3 Credits  Alternate Fall
Geography of Europe (except U.S.S.R.) (3+0) s
Regional, physical, economic, and cultural geography of Europe, except

GEOG 306  3 Credits  Alternate Spring
Geography of the Soviet Union (3+0) s
The physical, cultural, and historical geography of the U.S.S.R. with
special emphasis on the geographic bases of the expansion of the Great
Russians and the contemporary foundation of Soviet national power.
(Prerequisites: GEOG 101 or 103 or 205 or permission of the instructor.
Next offered: 1991-92.)

GEOG 309  3 Credits  Alternate Spring
Cartography (1+6) s
Graphic techniques for presenting geographic data through the
construction of maps, projections and charts. Materials fee: $40.00. (Pre-

GEOG 311  3 Credits  Alternate Fall
Geography of Asia (3+0) s
Regional geography of Asia, exclusive of the Soviet Union. Physical
framework, natural resources, peoples, major economic activities, and
characteristic landscapes of the major regions of Japan, China, South-
east Asia, India-Pakistan, and the Asiatic countries of the Middle East.
(Prerequisite: GEOG 101 or 103 or 205 or permission of the instructor.
Next offered: 1991-92.)

GEOG 315  3 Credits  As Demand Warrants
Geography of Africa (3+0) s
Physical and cultural geography of Africa, by regions. Significance of
Africa in the current world cultural, economic, and political geography.
Major emphasis on regions south of the Sahara. (Prerequisites: GEOG
101, 205.)

GEOG 327  3 Credits  Spring
Cold Lands (3+0) s
Comparative physical, human, and economic geography of cold re-
gions, with particular attention to Siberia, Greenland, Scandinavia and
Canada. Special attention given to different approaches taken toward
economic development in cold regions. (Prerequisite: GEOG 101 or 103
or 205 or permission of the instructor.)

GEOG 339  3 or 4 Credits  Spring
Advanced Physical Geography (3+0) or (3+3) n
Application of methodology of physical geography to analysis of re-
gional landscapes. Optional laboratory for one additional credit. (Pre-
requisites: GEOG 101 or 103, 205.)

GEOG 341  4 Credits  Fall
Techniques in Geographic Information Systems (3+3)
(Same as NRM 341)
GIS algorithms, data structures, advanced computational topics and
analysis of error. Examination of ways traditional planning and mana-
gement theories and techniques can be implemented in GIS's. (Pre-
requisite: GEOG 241.)

GEOG 401  3 Credits  Alternate Fall
Weather and Climate (3+0) n
Introduction to the study of weather and classification of climates.
(Prerequisite: Permission of the instructor. Next offered: 1992-93.)

GEOG 402  3 Credits  Alternate Fall
Culture and Environment (3+0) s
Relationship of cultures with the land they have occupied over time, in
the context of the world's major regions. Consideration given to
significance of cultural diversity, differing patterns of livelihood, set-
tlement and population change. (Prerequisites: GEOG 101, 205. Next
offered: 1991-92.)

GEOG 404  3 Credits  Alternate Fall
Urban Geography (3+0) s
A world survey of urbanization with particular emphasis on the accel-
erating urban revolution; Conditions favoring the rise of cities, loca-
tional and site factors, regional and interregional resource availability,
and human factors. Changing functions and patterns of urban areas.
National and international problems inherent in trends toward a
predominantly urbanized economy and culture. Implications of urban-

GEOG 405  3 Credits  Alternate Fall
Political Geography (3+0) s
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. (Prerequisite: GEOG 101. Next offered: 1992-93.)

GEOG 408  3 Credits  Alternate Spring
Quantitative Research Techniques (3+0)
Philosophy and methodology in geography. Theories, laws, and models
for measurement, analysis and explanation of geographic patterns and
associations. Applications of findings to solution of geographic problems.
(Prerequisites: Junior standing and college level mathematics,
or permission of the instructor. Next offered: 1992-93.)

GEOG 637  3 Credits  Alternate Fall
Geography of Northern Development (3+0)
(As same as NORS 637)

Geological Engineering

GE 101  1 Credit  Fall
Introduction to Geological Engineering (1+0)
Multiple aspects of geological engineering as a profession; the area
and scope of the field. Graded pass/fail.

GE 261  3 Credits  Spring
General Geology for Engineers (2+3)
(As same as GEOS 261)
Study of common rocks and minerals, landforms, erosion. Geologic
materials and engineering application of geology. (Prerequisite: Geolo-
gy, science, or engineering majors, or permission of instructor.)

GE 305  3 Credits  Fall
Geological Engineering I (3+0)
Geological and geotechnical factors for the solution of engineering
problems. Special emphasis on soils and permafrost. Some fieldwork
and student report. (Prerequisites: GEOS 101 or GE/GEOS 261 and ES
208 or 209.)

GE 372  3 Credits  Spring
Rock Engineering (3+0)
Rock engineering related to tunnels, slope design, and strata control.
Some fieldwork and student report. (Prerequisites: GEOS 101 or GE/
GEOS 261 and ES 208 or 209.)

GE 375  3 Credits  Fall
Terrain Analysis (3+0)
Evaluation of terrain characteristics using basic geomorphic and engi-
nering principles. Consideration given to Alaskan applications. (Pre-
requisites: GEOS 101 or GE/GEOS 261.)

GE 405  4 Credits  Spring
Exploration Geophysics (3+3)
Theory and application of gravity, magnetic, electrical, electro-mag-
etic, radioactive, and seismic methods as used for geophysical explo-
rative. Some field work. (Prerequisites: MATH 200 and PHYS 211 or
equivalent.)

GE 420  3 Credits  Spring
Subsurface Hydrology (2+3)
Hydraulic characteristics of earth materials, engineering problems and
models related to subsurface fluids, and properties of water. (Prerequi-
sites: GE/GEOS 261 and PHYS 211.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>GE 431</td>
<td>2</td>
<td>Applied Ore Microscopy</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>GE 435</td>
<td>3</td>
<td>Exploration Design</td>
<td>Spring</td>
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<tr>
<td>GE 440</td>
<td>3</td>
<td>Slope Stability</td>
<td>Alternate Spring</td>
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<tr>
<td>GE 471</td>
<td>3</td>
<td>Remote Sensing for Engineering</td>
<td>Spring</td>
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<tr>
<td>GE 480</td>
<td>2</td>
<td>Geological Engineering II</td>
<td>Spring</td>
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<tr>
<td>GE 630</td>
<td>3</td>
<td>Advanced Applied Mining Geology</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>GE 631</td>
<td>3</td>
<td>Electron Microprobe Methods in Mineral Exploration and Development</td>
<td>Spring</td>
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<tr>
<td>GE 633</td>
<td>3</td>
<td>Fluid Inclusion Methods in Mineral and Petroleum Exploration</td>
<td>Fall</td>
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<tr>
<td>GE 635</td>
<td>3</td>
<td>Geostatistical Ore Reserve Estimation</td>
<td>Spring</td>
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<tr>
<td>GE 649</td>
<td>3</td>
<td>Hazardous and Toxic Waste Management</td>
<td>Every Fifth Semester</td>
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<tr>
<td>GE 666</td>
<td>3</td>
<td>Advanced Engineering Geology</td>
<td>Alternate Fall</td>
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<tr>
<td>GE 668</td>
<td>3</td>
<td>Tunneling Geotechniques</td>
<td>Alternate Spring</td>
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<tr>
<td>GE 671</td>
<td>3</td>
<td>Engineering Applications of Digital Image Processing</td>
<td>Alternate Spring</td>
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**Geoscience (Geology and Geophysics)**

<table>
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<tr>
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<tbody>
<tr>
<td>GEOS 100</td>
<td>4</td>
<td>Introduction to Earth Science</td>
<td>Spring</td>
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<tr>
<td>GEOS 101X</td>
<td>4</td>
<td>The Dynamic Earth</td>
<td>Fall, Spring</td>
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<tr>
<td>GEOS 102X</td>
<td>4</td>
<td>Environmental Geology</td>
<td>Spring</td>
</tr>
<tr>
<td>GEOS 103</td>
<td>3</td>
<td>Landscapes and Resources of Alaska</td>
<td>As Demand Warrants</td>
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<tr>
<td>GEOS 104</td>
<td>3</td>
<td>Principles of Geology</td>
<td>Independent Learning Only</td>
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<tr>
<td>GEOS 105</td>
<td>3</td>
<td>Geology of America's National Parks</td>
<td>As Demand Warrants</td>
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<tr>
<td>GEOS 112X</td>
<td>4</td>
<td>The History of Earth and Life</td>
<td>Spring</td>
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<td>GEOS 120AX</td>
<td>1</td>
<td>Earthquakes</td>
<td>Spring</td>
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<td>GEOS 120BX</td>
<td>1</td>
<td>Volcanos</td>
<td>Spring</td>
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<tr>
<td>GEOS 120CX</td>
<td>1</td>
<td>Glaciers: Past, Present and Future</td>
<td>Spring</td>
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<tr>
<td>GEOS 212</td>
<td>3</td>
<td>Geology of Alaska</td>
<td>Spring</td>
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<td>GEOS 213</td>
<td>4</td>
<td>Mineralogy</td>
<td>Fall</td>
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<tr>
<td>GEOS 214</td>
<td>4</td>
<td>Petrology and Petrography</td>
<td>Spring</td>
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<tr>
<td>GEOS 261</td>
<td>3</td>
<td>General Geology for Engineers</td>
<td>Spring</td>
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<tr>
<td>GEOS 262</td>
<td>3</td>
<td>Rocks and Minerals</td>
<td>Alternate Fall</td>
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<tr>
<td>GEOS 304</td>
<td>3</td>
<td>Geomorphology</td>
<td>Fall</td>
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</table>

Survey of four main disciplines of earth science: geology, oceanography, meteorology, and astronomy. Lab portion optional: vehicle to learn scientific methodology, evidence to support theories presented in lectures. (Prerequisite: English placement test)
GEOS 314 4 Credits  
Spring  
Structural Geology (3+3) n  
Origin and interpretation of primary and secondary geologic structures. Geometric solutions of structural problems. Laboratory fee: $10.00. (Prerequisites: GEOS 112X, PHYS 103 or 211, MATH 201, GEOS 214 [or concurrent registration].)

GEOS 321 3 Credits  
Alternate Fall  
Sedimentology (2+3) n  
Origin, classification, composition, transportation, deposition, and diagenesis of sediments. Laboratory covers identification and description of hand specimens as well as techniques of textual and computer-aided analysis. Laboratory fee: $10.00. (Prerequisite: GEOS 213 or permission of instructor. Next offered: 1992-93.)

GEOS 322 4 Credits  
Spring  
Stratigraphy and Sedimentation (3+3) n  
Analysis of sequence in sediments including principles of litho-, bio- and chronostratigraphy. Surface and subsurface methods utilizing petrologic and geophysical data. Laboratory emphasizes correlation problem from geologic maps and subsurface data. (Prerequisites: GEOS 101X or 261, and 112X.)

GEOS 332 3 Credits  
Alternate Spring  
Ore Deposits and Structure (1+6)  
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. Laboratory fee: $5.00. (Prerequisite: GEOS 262 or permission of instructor. Next offered: 1992-93.)

GEOS 351 4 or 6 Credits  
Field Geology (Arranged) n  
Practical experience in collecting and presenting basic field data. Includes field mapping of stratigraphic and structural problems, aerial photographs, plane table maps, and preparation of professional reports and geologic maps. Students pay own transportation, subsistence and tuition. Entrance by preregistration only; apply through the department. Each registration for geology option students may enroll for 4 credits if they also register for GEOS 451. All others must take 6 credits. (Prerequisites: Junior standing in geology and permission of instructor.)

GEOS 370 4 Credits  
Alternate Spring  
Sedimentary and Structural Geology for Petroleum Engineers (3+3) n  
Origin and distribution of sedimentary rocks including depositional environments, stratigraphic relationships, and traps. Emphasis on the relationship to petroleum occurrences and petroleum exploration. Laboratory exercises include: mapping, structural problems and facies relationships in petroleum exploration. (Prerequisite: GEOS 101X or GE/GEOS 261. Next offered: 1992-93.)

GEOS 401 4 Credits  
Fall  
Invertebrate Paleontology (3+3) n  
Invertebrate phyla with fossil records and biologic principles. Emphasis on soft-part anatomy and classification, hard-part anatomy of fossil groups and their classification. Laboratory study on fossil materials. (Prerequisite: GEOS 101X or by permission of instructor; BIOL 305 recommended.)

GEOS 408 2 Credits  
Alternate Spring  
Photogeology (1+3) n  
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 data, and composite mapping for planning. Laboratory fee: $10.00. (Prerequisite: GEOS 304 or permission of instructor. Next offered: 1991-92.)

GEOS 410 2 Credits  
Fall  
Potential Methods in Geophysics (1+3) n  
Theory of potential methods and application to geophysical exploration. Basic techniques and methods of interpretation of gravimetric and magnetic measurements. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

GEOS 411 3 Credits  
Spring  
Seismic Exploration (2+3) n  
Fundamental principles of seismic exploration techniques, beginning with basic laws of seismic wave propagation and ending with practical application of the techniques, including reflection and refraction methods. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

GEOS 412 2 Credits  
Fall  
Electrical Methods in Geophysics (1+3) n  
Electrical resistivity and current flow in the earth and the practical application in the realm of geophysical exploration. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

GEOS 414 3 Credits  
Alternate Fall  
Introduction to Glaciology (3+0) n  
Thermodynamics of phase relations, supercooling, nucleation, and freezing of water in the laboratory and in rivers, lakes, oceans, clouds, droplets, soil, and animal and plant tissue. Physical properties and processes in seasonal and perennial snow, frozen ground and sea ice, and transformation of snow to glacier ice examined. Distribution and classification of glaciers, mass balance of glaciers, glacier flow and causes of glaciation. (Prerequisite: GEOP 411 or permission of instructor. Next offered: 1991-92.)

GEOS 417 3 Credits  
Fall  
Introduction to Geochemistry (3+0) n  
Introduction to chemistry of the earth. (Prerequisites: CHEM 103, 106 or permission of instructor.)

GEOS 418 3 Credits  
Fall  
Basic Geophysics (3+0) n  
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, magnetics and electromagnetic physics; and their applications along with measurements of the earth's thermal structure, rotation rates, and tide effects. (Prerequisite: Permission of the instructor.)

GEOS 419 4 Credits  
Alternate Spring  
Continuum Mechanics (4+0) n  
Mechanics of continuous deformable media; analysis of stress and strain using tensor notation; elastic, viscous, plastic and visco-elastic constitutive laws with examples from the geophysical environment including hydrology, geology, glaciology and meteorology. (Prerequisites: PHYS 211, 212 and MATH 302 or permission of instructor. Next offered: 1991-92)

GEOS 420 4 Credits  
Alternate Fall  
Elements of Seismology (3+3) n  
Global distribution of earthquakes; causes and effects of earthquakes with reference to Alaska; instrumentation utilization for determination of earthquake sources and subsurface structures; techniques for studies of seismotectonics and earthquake prediction. (Prerequisite: Geoscience students: MATH 201; Civil Engineering students: ES 331. Next offered: 1991-92)

GEOS 422 3 Credits  
Fall  
Geoscience Applications of Remote Sensing (2+3) n  
Remote sensing and its applications to geologic, environmental and physical sciences. Includes nomenclature, a review of sensing systems and forms in which data is available. Emphasis on use of LANDSAT, radar imagery, thermal imagery and color infrared photography. (Prerequisites: PHYS 104, 212, junior standing or consent of instructor.)

GEOS 430 3 Credits  
Spring  
Statistics and Data Analysis in Geology (3+0) n  
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: MATH 200 or STAT 301; senior standing or permission of instructor.)

GEOS 432 3 Credits  
Alternate Fall and Spring  
Geology of Mineral Resources (3+0) n  
Occurrence and characteristics of metallic and selected non-metallic mineral deposits, geographic locations, petrographic settings, mineral-logic and petrologic features, and theories of genesis, with applications to exploration and development. (Prerequisites: GEOS 214, 314, 322, 401. Next offered: 1991-92.)

GEOS 432L 2 Credits  
Alternate Fall and Spring  
Geology of Mineral Resources Laboratory (1+3) n  
Laboratory work includes identification, characterization and systematic description of major ore types. Laboratory fee: $10.00. (Prerequisites: GEOS 214. Next offered: 1991-92.)

GEOS 451 2 Credits  
Summer  
Practical Field Geophysics n  
A field experience in data acquisition and reduction. Techniques used include gravimetric, radiometric, resistivity, magnetic, electro-magnetic and seismic. Taught concurrently with the last two weeks of GEOS 351. Entrance by preregistration only; apply through the department. Class usually is filled to capacity by February of current year. (Prerequisites: MATH 201, PHYS 212, introductory exploration geophysics, and permission of instructor.)
GEOS 462  4 Credits  Alternate Fall
Glacial and Periglacial Geology (3+3) n

GEOS 465  3 Credits  Alternate Spring
Geology (3+0)
(Same as ANTH 465)
Geological context of archeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day field trip planned for a weekend in late April or early May. (Prerequisites: GEOS 101X, an introductory course in archeology, or permission of instructor. Next offered: 1991-92.)

GEOS 470  4 Credits  Alternate Fall
Petroleum Geology (3+3)
Basic elements required for hydrocarbon accumulation: source, maturation, migration, reservoir, seal, and trap. These elements and exploration and production practices illustrated using examples of oil and gas fields throughout the world. Lab provides experience with the tools and techniques of surface and subsurface exploration. (Prerequisites: GEOS 314, 321, 322. Next offered: 1991-92.)

GEOS 475OW  2 Credits  Spring
Presentation Techniques in the Geosciences (1+3)
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. (Prerequisite: Senior standing in geology.)

GEOS 482  1 Credit  Fall, Spring
Geology Seminar (1-0)
A weekly seminar series on a geologic theme of current interest for a complete semester. (Prerequisite: Senior or graduate standing or permission of instructor.)

GEOS 602  3 Credits  Alternate Fall
Geophysical Fields (3+0)

GEOS 603  1-2 Credits  As Demand Warrants
Advanced Field Mapping (0+3)-(1+3)

GEOS 604  3 Credits  Alternate Fall
Intermediate Seismology (3+0)

GEOS 605  3 Credits  Alternate Spring
Geochronology (3+0)

GEOS 606  2 Credits  Alternate Spring
Volcanology (2+0)

GEOS 607  2 Credits  Spring
Advanced Paleomagnetism (1+3)

GEOS 608  2-4 Credits  As Demand Warrants
Advanced Exploration Geophysics (2-4+0)

GEOS 609  2-4 Credits  Fall-Spring
Advanced Geomorphology (2-4+0-3)

GEOS 610  3 Credits  Alternate Spring
Advanced Seismology (3+0)

GEOS 611  3 Credits  Alternate Fall
Tectonics and Sedimentation (3+0)

GEOS 612  3 Credits  Alternate Fall
Geologic Evolution of Alaska (3+0)

GEOS 613  3 Credits  Alternate Spring
Global Tectonics (3+0)

GEOS 614  3 Credits  Alternate Spring
Ice Physics (3+0)

GEOS 615  3 Credits  Fall
Sea Ice (3+0)

GEOS 616  3 Credits  Spring
Permafrost (3+0)

GEOS 617  3 Credits  Alternate Fall
Glaciers (3+0)

GEOS 620  3 Credits  Alternate Spring
Geodynamics (3+0)

GEOS 621  2-4 Credits  As Demand Warrants
Advanced Petrology (2-3+3-6)

GEOS 622  4 Credits  As Demand Warrants
Advanced Clastic Petrology (3+3)

GEOS 625  3 Credits  Alternate Fall
Mountain Belts of the World (3+0)

GEOS 626  3 Credits  As Demand Warrants
Structural Analysis (3+0)

GEOS 631  3 Credits  Alternate Spring
Advanced Geochemistry (1-3+0)

GEOS 632  4 Credits  As Demand Warrants
Advanced Study of Mineral Deposits (3+3)

GEOS 635  1-4 Credits  As Demand Warrants
Advanced Economic Geology (1-4+0-3)

GEOS 636  2 Credits  Fall
Scientific Methods, Strategies and Tools in Geology (2+0)

GEOS 637  4 Credits  As Demand Warrants
Rock-Forming Minerals (3+3)

GEOS 640  4 Credits  Alternate Spring
Petrology of Carbonate Rocks (3+3)

GEOS 641  1-3 Credits  As Demand Warrants
Advanced Paleontology (1-3+0)

GEOS 643  3 Credits  Alternate Fall
Sandstone Depositional Environments (3+0)

GEOS 644  3 Credits  Alternate Spring
Advanced Stratigraphy (3+0)

GEOS 645  3 Credits  Alternate Fall
Advanced Carbonate Sedimentology (3+0 or 2+3)

GEOS 646  3 Credits  As Demand Warrants
Seismic Stratigraphy (2+3)

GEOS 647  3 Credits  As Demand Warrants
Advanced Sedimentology (3+0)

GEOS 649  3 Credits  Alternate Spring
Geomorphology of the Unglaciated Arctic and Subarctic (3+0)

GEOS 650  3 Credits  Alternate Fall
Paleooecology of Beringia (3+0)

GEOS 661  3 Credits  Alternate Spring
Microwave Active Remote Sensing (3+0)

GEOS 662  3 Credits  Alternate Fall
Microwave Scattering from Land, Sea and Ice (3+0)

GER 075  3 Credits  As Demand Warrants
Conversational German I and II (3+0)

GER 076  3 Credits  As Demand Warrants
An introductory course for students who wish to acquire the ability to speak German. Students first learn to understand simple spoken language, then to speak simple German developing a beginning level of communicative competence in the language. (Prerequisite: GER 075 for 076.)

GER 101  5 Credits  Fall
Elementary German I and II (5+0) h
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 audio-visual materials.

GER 201  3 Credits  Fall
Advanced German I and II (3+0) h
Continuation of GER 102. Increasing emphasis on reading ability and cultural material. Conducted in German. (Prerequisite: GER 102 or equivalent.)

GER 301  3 Credits  Fall
Advanced German (3+0) h
Discussions and essays on more difficult subjects or topics. Translations, stylistic exercises, and special grammatical problems. Conducted in German. (Prerequisite: GER 202 or equivalent.)
GER 431 3 Credits  Fall  Studies in the Culture of the German Speaking World (3+0) h
Study of the cultures of the German speaking world. Conducted in German. Students may repeat course for credit if topic varies. (Prerequisites: GER 301 or equivalent; junior standing or permission of instructor.)

GER 432 3 Credits  Spring  Studies of Literature in German (3+0) h
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in German. Student may repeat course for credit when topics vary. (Prerequisites: GER 302 or equivalent and at least junior standing, or permission of instructor.)

GER 487 3 Credits  Fall  Translation of German Texts (3+0) h
Expansion of vocabulary and grammatical knowledge, emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language, and literary and non-literary texts. Student may repeat course for credit if material varies. Conducted in German. (Prerequisites: GER 302 or equivalent and at least junior standing, or permission of instructor. Next offered: 1991-92.)

GER 488 3 Credits  As Demand Warrants  Individual Study: Senior Project h
Designed to permit the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 9th week of the semester preceding the semester of graduation. Offered normally in the semester preceding the student's graduation. Conducted in German. (Prerequisites: At least 10 credits in upper division German or permission of instructor.)

Health

HLTH 120 1 Credit  As Demand Warrants  Industrial First Aid (1+0)
Includes CPR training, control of bleeding and shock, recognizing heart problems, stroke, poisoning, and medical emergencies. Students may repeat course for credit if topics vary. (Prerequisites: HLTH 123 or equivalent; junior standing.)

HLTH 203 3 Credits  Independent Learning Only  Science of Nutrition (3+0)
Principles of nutrition and their relationship to the life cycle. Importance of nutrition awareness and good dietary habits stressed.

HLTH 281 1 Credit  As Demand Warrants  Pharmacology Update (1+0)
Update on pharmacology including review of old drugs and information on new drugs. Review of pharmaceutical calculations and pharmacodynamics. (Prerequisite: Practicing or licensed nurse.)

History

HIST 100X 3 Credits  Fall, Spring  Modern World History (3+0) s
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.

HIST 101 3 Credits  Fall  Western Civilization (3+0) s
Origins and major political, economic, social, and intellectual developments of western civilization from 1500. Also available via Independent Learning.

HIST 102 3 Credits  Spring  Western Civilization (3+0) s
Major political, economic, social, and intellectual developments of western civilization since 1500. Also available via Independent Learning.

HIST 103 3 Credits  As Demand Warrants  History of the Yukon-Kuskokwim Delta (3+0) s
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 Yupik social, economic, and educational changes, including both native and non-native accounts. Offered only at the Kuskokwim Campus.

HIST 105 1 Credit  As Demand Warrants  Introduction to the History and Culture of the Seward Peninsula (1+0) (Same as ANTH 105)
Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, history, and archeology. Also includes discussion of Alaska's Inuit and Euro-American cultures which have existed in western Alaska.

HIST 110 3 Credits  Fall, Spring  History of Alaska Natives (3+0) s
The history of Alaska Natives from contact to the present. (Offered: 1991-92.)

HIST 115 3 Credits  Independent Learning Only  Alaska, Land and Its People (3+0) s
A survey of Alaska from earliest days to present, its peoples, problems, and prospects.

HIST 121 3 Credits  Alternate Fall  East Asian Civilization (3+0) s
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. (Next offered: 1991-92.)

HIST 122 3 Credits  Alternate Spring  East Asian Civilization (3+0) s
East Asia from 1800 to the present with emphasis on patterns of social cohesion, transition, and revolutionary change. (Next offered: 1991-92.)

HIST 123 3 Credits  As Demand Warrants  Japan: The Changing Tradition (3+0) s
Focuses on the history and changing cultural traditions of Japan's modern era, the brief period during which Japan has developed its own distinctive form of an urbanized, industrialized, and democratic society.

HIST 131 3 Credits  Fall  History of the U.S. (3+0) s
Fall semester: The discovery of America to 1865. Colonial period, revolution, formation of the constitution, western expansion. Civil War. Spring semester: From the reconstruction to the present. Both courses also available via Independent Learning.

HIST 200 3 Credits  As Demand Warrants  History of Alaska Natives (3+0) s
Alaska Native cultures, kinship systems, world views and social organizations. Covers pre-contact days to the present including effects of the Native Land Claims Act.

HIST 201 3 Credits  As Demand Warrants  History of the Bering Straits (3+0) s
Covers prehistory, exploration and permanent settlement, material culture, religion, education. Focus on the influence these factors have had on development of the region. Includes analysis of perceptions of others in writings about the region.

HIST 244 3 Credits  As Demand Warrants  Movies: Mirror of the World (3+0) s
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 Africa, England, France, Russia, Turkey, India, China, Japan, Australia, Africa, and the Arctic. Offered only at the Kuskokwim Campus.

HIST 250 3 Credits  As Demand Warrants  Alaska History for Local Historians (3+0) s
Techniques of regional and local historical research using exploration accounts, oral history, education reports, census studies, newspapers, etc. Final project of original research required. This local history course is currently available with emphasis on the Bering Straits, Bristol Bay, and Aleutian/Pribilof regions.

HIST 257 3 Credits  As Demand Warrants  Gold Rush Era: Myth and Reality (3+0) s
The Gold Rush Era of 1880-1905 in Alaska and the Yukon. Emphasis on the Klondike, but Juneau, Nome and Fairbanks are also investigated. Fact and fiction utilized to understand the myth and reality of the era.
HIST 441 3 Credits Alternate Spring
The Development of the American and Canadian West 1867-
Present (3+0) s
Building of transcontinental railroads and plains settlement in U.S. and
Canada and Klondike gold rush. Theories of frontier development,
statehood movements and views of the West as a 'colony' region in the
20th century. (Prerequisite: HIST 132 or HIST 440 or permission of
instructor.)

HIST 442 3 Credits Independent Learning Only
History of the American Military (s)
The military's place in American life and society from the Colonial era
to the early 1980's. Role of the military institution in shaping the nature of
American society while reflecting the character of the society it
serves.

HIST 450 3 Credits Alternate Spring
Twentieth Century America (3+0) s
United States from the progressive movement to the present day, with
emphasis on domestic developments. (Prerequisite: HIST 131, HIST 453 or
permission of instructor. Next offered: 1991-92.)

HIST 451 3 Credits Independent Learning Only
History of U.S. Foreign Policy (s)
Evolution of U.S. foreign policy with emphasis on post-World War II
period and emerging of a bipolar distribution of power. Includes
discussion of the Vietnam War, American policy in the Middle East, and
the foreign policy views of Kennedy, Nixon, Carter and Reagan
administrations. (Prerequisite: Junior standing or permission of
instructor.)

HIST 455 3 Credits Alternate Fall
Military History (3+0) s
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. Next offered: 1992-93.)

HIST 460 3 Credits Spring
A History of Russian America (3+0) s
A history of Russian exploration and settlement in North America,
including the impact of this contact on the indigenous peoples.

HIST 470W 3 Credits Spring
Researching and Writing Alaska History (1.5+3) w
Introduction to research methodology, differing historical interpreta-
tions, resources used by historians, such as primary materials and
secondary sources, and appropriate footnoting. Research paper re-
quired based on archival sources. (Prerequisite: Senior standing or
permission of instructor.)

HIST 475 3 Credits Fall
Historiography (3+0) s
Historical interpretation by different historians on a topic of the stu-
dent's choosing. (Prerequisites: Senior standing and instructor
permission.)

HIST 476 3 Credits Spring
Preparation and Writing of a Senior Thesis Using Primary Research
Materials (3+0) s
Preparation and writing of a senior thesis using primary research
materials on a topic of the student's choosing. (Prerequisites: HIST 475
and instructor permission.)

HIST 600 3 Credits Fall
Perspectives on the North (3+0)
(Same as NORS 600)

HIST 690 3 Credits Alternate Spring
Researching and Writing Public Northern History (1+3)
(Same as NORS 690)

Honors

HONR 390 3 Credits Alternate Spring
Liability and Ethics: Practical Questions in Today's
Complex Society (3+0) s
Ethical questions regarding the practice of a profession in today's
complex society are explored. These are integrated into the associated
fields of law, liability and insurance, among other fields, as they relate
to working in today's highly competitive marketplace. (Prerequisites:
Sophomore standing and permission of the Honors Director or
instructor.)

Human Services

HMSV 201 3 Credits As Demand Warrants
Introduction to Human Services (3+0)
Examines purposes and functions of the various social and human
service programs which constitute society's organized response to
problems. Federal, state and local programs and agencies are
described, including those directed at child welfare, alcohol and drug
abuse, mental health, juvenile delinquency, and discrimination. (Pre-
requisite: SOC 101 or PSY 101.)

HMSV 205 3 Credits Fall
Factors in Health and Disease (3+0)
Introduction to the phenomenon of human disease. Cases presented
demonstrate ways the normal healthy state may be disrupted by exte-
rior or internal influences. Natural histories of major types of disease
are reviewed.

HMSV 210 3 Credits Alternate Fall
Crisis Intervention (3+0)
Theoretical foundations and appropriate techniques and strategies for
helping individuals, families, and groups during stressful situations.
Application of the crisis approach to stress-induced situations, such as
natural disasters, developmental life crises, rapid social change, and
situational crises such as illness and personal loss. (Prerequisites: SOC
101, PSY 101 or permission of instructor. Next offered: 1992-93.)

HMSV 215 3 Credits As Demand Warrants
Death and Dying (3+0)
An interdisciplinary study of thanatology with material from multicultu-
ral, humanistic and life span perspectives. Topics include attitudes in
society, individual responses to bereavement, children's understand-
ing of death and ethical issues associated with choices at the end of
life. (Prerequisite: Instructor permission.)

HMSV 225 2 Credits As Demand Warrants
Case Management (2+0)
Basic knowledge and skills to develop service plans in human service
work and to maintain appropriate case records. Legal and ethical issues
in case management considered and discussed.

HMSV 230 3 Credits As Demand Warrants
Alcoholism: Causes and Consequences (3+0)
Examination of theories concerning the causes of alcoholism. Physical
and psychological factors, personality disorders or disease states. Data
supporting these theories evaluated. (Prerequisite: SOC 101 or PSY 101
or permission of instructor.)

HMSV 255 3 Credits Fall
Foundations of Counseling I (3+0)
(Same as SWK 225)
Survey of counseling philosophy approaches and types of counseling
programs in use. Topics include approach and system match, psycho-
analysis, behavior therapy, and humanistic approaches; counseling eth-
ics and ethical problems. (Prerequisites: PSY 101, 240 or permission of
instructor.)

HMSV 284 3 Credits As Demand Warrants
Variable Credits
Human Services Seminar
Identification and discussion of issues relevant to the human services
field. Specific topics announced. (Prerequisite: Permission of
instructor.)

HMSV 330 3 Credits As Demand Warrants
Alcoholism: Treatment and Prevention (3+0)
Survey and evaluation of alcoholism and alcohol abuse treatment and
preventive programs with emphasis on prevention strategies. (Pre-
requisites: HMSV 230.)

HMSV 355 3 Credits Spring
Foundations of Counseling II (3+0)
(Same as PSY 356)
Continuation of HMSV 255. Specific counseling strategies studied in-
clude crisis intervention, individual techniques such as rational therapies, and specific behavioral approaches. Other topics
include role of the counselor in community education and consulta-
tion, methods of promoting community change and issues in cross-
cultural counseling. (Prerequisite: HMSV 255 or PSY 355.)

HMSV 410 3 Credits As Demand Warrants
Management of Human Services Programs (3+0)
Basic methods of program management and personnel supervision, with
emphasis on applications in rural or isolated locations. Supervised
in-service activities. (Prerequisite: HMSV 255.)
Human Service Technology

HST 101 3 Credits  Fall  Introduction to Human Services (3+0)
The generalist human service model focusing on creative problem solving, assessment, goal setting, planning and evaluation in human services.

HST 105 3 Credits  Fall  Personal Awareness and Growth (3+0)
Interpersonal and intrapersonal communication explored. Self-therapy process used as format to identify personal enrichment opportunities and to increase awareness of self and others.

HST 110 3 Credits  Spring  Social Problems and Community Resources
Major social problems emphasizing mental illness, domestic violence and child abuse. Identification and discussion of community human service resources.

HST 115 3 Credits  Spring  Human Growth and Development (3+0)
Biological, intellectual, social and personality aspects of human development from conception through old age. (Prerequisite: PSY 101.)

HST 120 3 Credits  Spring  Cultural Diversity in Human Services (3+0)
The impact of culture on the delivery of human services with emphasis on Alaskan Native cultures; examination of relationship of multicultural and multi-ethnic concepts.

HST 125 3 Credits  Spring  Introduction to Addictive Processes (3+0)
Study of addiction from a disease model with emphasis on chemical dependency issues; symptoms assessment, intervention, treatment and recovery. Twelve step and self-help programs introduced.

HST 130 3 Credits  Fall  Family and Family of Origin Issues (3+0)
Overview of the family from a family systems approach as it relates to providing human services. Emphasis on understanding family of origin and adult children of dysfunctional families issues.

HST 205 3 Credits  Spring  Basic Principles of Group Dynamics and Therapeutic Activities (3+0)
Concepts and techniques of working with groups including establishing group goals, effective group interaction, termination and evaluation. Development of therapeutic group activities will also be addressed.

HST 210 3 Credits  Fall  Crisis and Grief Counseling (3+0)
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.

HST 215 3 Credits  Fall  Individual Interviewing and Assessment (3+0)
The process of gathering client information and making initial assessment observations required in human service documentation, focusing on the development of one-to-one interviewing skills.

HST 220 3 Credits  Spring  Human Service Case Management (3+0)
A systematic approach to providing case management in human service settings. Topics include the role of the case manager and the stages of case management including engagement, assessment, planning, accessing resources, coordination and termination.

HST 230 2 Credits  Fall, Spring  Human Service Practicum I (0+8)
Integration of human service theory with skill-based training through a professional, supervised experience in a human service agency. Practicum requires a minimum of 8 hours of placement per week. (Prerequisites: HST 101, 110, 120, 125 and permission of instructor.)

HST 231 2 Credits  Fall, Spring  Human Service Practicum II (0+8)
Continuation of HST 230. (Prerequisite: HST 230.)

HST 240 1 Credit  Fall, Spring  Human Service Seminar I (1+0)
Human service documentation including progress notes, social history, mental status exam., and journaling. Student shared learning and peer support based on practicum experience. (Prerequisites: HST 101, 110, 120, 125.)

HST 241 1 Credit  Fall, Spring  Human Service Seminar II (1+0)
Human service documentation skills, student shared learning and peer support based on practicum experience. (Prerequisite: HST 240.)

HST 250 1-4 Credits  As Demand Warrants  Current Issues in Human Service (1-4+4)
Selected current issues of importance to the human service field. Emphasis on issues impacting Alaskan communities. Repeatable for credit by HST majors to a maximum of 6 credits.

Humanities

HUM 101 3 Credits  As Demand Warrants  The Humanities: A Cultural Perspective (3+0)
Examination of humanities using both Western Civilization and the Yup'ik cultures 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 Western Culture to help students develop greater awareness of forces that affect them.

HUM 131 3 Credits  As Demand Warrants  Introduction to Alaska Literature (3+0)
Survey of Alaskan literature, poetry and drama with emphasis on appreciation of literature written by both natives and non-Natives. Students read examples from oral Native tradition, the frontier era, and contemporary living writers by audioconference.

HUM 161 3 Credits  As Demand Warrants  In Our Own Image (3+0)
Focuses on some very basic notions about people — how they see things and what they care about — and some very basic notions about the fine arts — how they are created, how they communicate, and how they can be evaluated.

HUM 201 3 Credits  Fall  Unity in the Arts (3+0)
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. (Prerequisite: Open to students beyond the freshman level or by permission of the instructor.)

HUM 202 3 Credits  Spring  Unity in the Sciences (3+0)
A detailed treatment of scientific methods and principles within a larger cultural context. Examination of the roles of mathematics and logic in the structure of the scientific enterprise. (Prerequisite: Open to students beyond the freshman level or by permission of the instructor.)

HUM 211 3 Credits  As Demand Warrants  Introduction to Humanities I (3+0)
Integrated exploration of fundamental principles of literature, music, and visual arts.

HUM 212 3 Credits  As Demand Warrants  Introduction to Humanities II (3+0)
Study of specific historical period or periods with reference to philosophy, literature, science, art and music.
The student will learn to read and will odd additional language and cultural studies. (Prerequisite: JPN 301 or equivalent.)

HUM 241 3 Credits As Demand Warrants
Examination of literature of the Eskimos, people as well as other Native North Americans, Asians, and Europeans. Universal and timely themes are compared which communicate aspects of the human experience valid across cultures and times. HUM 241 is not prerequisite to HUM 242.

HUM 3230 3 Credits Alternate Fall
The Modern Media: Search for Communication (3+0) h Review of effects and trends in mass media relating to society, media, and culture. The study of how communications is perceived and its evaluation by the viewer. (Prerequisite: 3 credits in visual arts or permission of instructor. Next offered: 1991-92.)

HUM 332 3 Credits Alternate Spring
Varieties of Visual Expression: Art as Image and Idea (3+0) h Discussion of the visual elements of art, principles of visual organization, the process of artistic perception and its evaluation by the viewer. (Prerequisite: 3 credits in visual arts or permission of instructor. Next offered: 1991-92.)

HUM 411 3 Credits Alternate Fall
Dimensions of Literature (3+0) h Systematic discussion of the medium of literary creation, of the organization of literary texts and their functions and relationships. (Prerequisite: 6 credits in literature course, or permission of the instructor. Next offered: 1991-92.)

HUM 492 3 Credits Alternate Spring
Senior Seminar (3+0) h Consideration of the humanities at the University of Alaska and on alternate approaches elsewhere. Student project paper required with oral presentation and defense. (Prerequisite: Open requirements, or by permission of the instructor. Next offered: 1991-92.)

Japanese

For information on studying in Japan, see Study Abroad.

JPN 101 5 Credits Fall
Elementary Japanese I and II (5+0) h 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 130 kanji. Cultural dimension is explored implicitly through language and explicitly through audiovisual materials. Courses are taught in Japanese.

JPN 201 4 Credits Fall
Intermediate Japanese I and II (4+0) h The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension enhanced by using videotape materials. Courses are taught in Japanese. (Prerequisite: JPN 102 or equivalent.)

JPN 301 3 Credits Fall
Advanced Japanese (3+0) h 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. (Prerequisite: JPN 302 or equivalent.)

JPN 332 3 Credits Alternate Spring
Japanese Cultural Traditions (3+0) h A study of Japanese cultural traditions as revealed in the literature, visual, and performing arts. Discussion of literature in English translation is integrated with slide lectures on Buddhist painting and sculpture, picture scrolls, castle decoration, woodblock prints, the tea ceremony, gardens, and the No, Kabuki, and puppet theatres. Course is taught in English. (Prerequisite: Junior standing or consent of instructor. Next offered: 1991-92.)

JPN 333 3 Credits Alternate Spring
Twentieth Century Japanese Prose Fiction (3+0) h 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. (Prerequisite: Junior standing or consent of instructor. Next offered: 1992-93.)

JPN 342 3 Credits Spring
Studies of Literature in Japanese (3+0) h Intensive study of authors, literary texts, movements, genres, themes or intellectual issues in modern Japanese society. Student may repeat course for credit when topics vary. (Prerequisites: JPN 302 or equivalent; at least junior standing or permission of instructor.)

Journalism — Broadcasting

JB 101 3 Credits Fall, Spring
Introduction to Mass Communications (3+0) h 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. Also available via Independent Learning.

JB 102 3 Credits Fall, Spring
Introduction to Broadcasting (3+0) h Principles of broadcasting as they relate to the people of the United States, including history, government involvement, and social effects.

JB 203 3 Credits Fall, Spring
Basic Photography (3+0) h Photography fundamentals, including use of an adjustable camera, film and exposure techniques, filters, flash techniques, and an introduction to color. Darkroom procedures including black and white film processing and printing, photography design and composition. Students must have basic 35mm camera equipment. Laboratory fee: $40.00. (Course may not be used to meet major or minor requirements in Journalism/Broadcasting.)

JB 204 3 Credits Spring
Photojournalism (3+0) h Fundamentals of visual communication through photography; issues and techniques of modern photojournalism; news, features, sports, fashion, and the photo essay assignments as encountered at a daily newspaper; preparation of photographs for publication. Students must have basic 35mm camera equipment. Laboratory fee: $40. (Prerequisite: JB 203 or instructor permission.)

JB 215 3 Credits Fall, Spring
Audio Production (2+3) h Sound production for radio, television, film, and stage amplifications. Emphasis on writing, recording, control room techniques, and editing. Laboratory fee: $10.00.

JB 217 3 Credits Spring
Introduction to the Study of Film (2+2) h (Same as ENGL 217) A broad historical survey of cinematic art with emphasis on its humanistic and artistic aspects. (Prerequisite: ENGL 111.)

JB 240 3 Credits Spring
International Communications (3+0) h Historical development of different mass communication systems around the globe. The relationship between press philosophies and their practical implementation. Mass communication systems of selected countries as representative examples of generalized systems.

JB 301W 4 Credits Fall, Spring
Adv. News Reporting and Writing (2+4) h Finding and getting the story, writing the lead, developing story structure, writing on deadline, editing copy, writing headlines and captions, cropping and sizing pictures, and writing for broadcast news. Laboratory fee: $10. (Prerequisites: ENGL 111 and ENGL 211, 213 or 311, junior standing or instructor permission.)

JB 308 3 Credits Fall
Film and TV Criticism (3+0) h Theoretical approaches to viewing, analyzing and evaluating film and television program content.

JB 311W 3 Credits Fall, Spring
Magazine Article Writing (2+1) h Writing articles for publication. Students repeating the course limited to six credits. (Prerequisites: JB 301 or permission of instructor.)
COURSE DESCRIPTIONS—JUSTICE / 159

JB 316 3 Credits Fall
Television Production (2+4)
Television production, floor directing, audio, camera, film chain, staging, lighting, and switching. Materials fee: $40.00. (Prerequisite: JB 215 or permission of instructor.)

JB 317W 3 Credits Spring
Broadcast Journalism (3+0)
Overview of the broadcast journalism field. Emphasis on intensive broadcast news writing practice, including interviewing techniques, ethical issues and current controversies, structure of television and radio news operations and broadcast reporting experiences. (Prerequisite: JB 311 or instructor permission.)

JB 320 3 Credits Spring
Journalism in Perspective (3+0) h
Present problems and trends in mass communication with emphasis on historical development, including survey of world press coverage and problems. (Prerequisite: Junior standing.)

JB 323 3 Credits Fall
Publication Editing (3+0)
Publication management and editing: content selection, design, editorial responsibility, and economics of publishing. (Prerequisite: Junior standing.)

JB 324 3 Credits Spring
Typography and Publication Design (2+2)
Typography, layout, and design, coupled with a study of the methods of printing production. Materials fee: $20.00. (Prerequisite: Permission of instructor.)

JB 326 3 Credits Spring
Principles of Advertising (3+0)
(Also as B 326)
Advertising including strategy, media use, creation and production of advertisements and measurement of advertising effectiveness. (Prerequisite: Junior standing.)

JB 340 3 Credits Fall
Mass Media and Society (3+0) s
Development of mass communication theory and research in the U.S. in the last one hundred years. Relationship between theoretical assumptions and concerns of investigators, questions posed, methodological frameworks adopted, findings reached, and integration of new knowledge into the existing corpus.

JB 400 1-3 Credits Fall, Spring
Media Practicum (1-6)
Practical training in print or electronic communication. Participation at an approved publication or broadcast station required. (Prerequisite: Senior standing or permission of instructor.)

JB 401 3 Credits Fall and Spring
Advanced Photography (2+3)
Continuation of JB 203. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography. Laboratory fee: $40. (Prerequisite: JB 203 or instructor permission.)

JB 407 3 Credits Spring
Broadcasting Programming (2+0)
Programming practices at radio and TV stations, networks, cable companies and relationship of the practices with sales, audience, and government. (Prerequisite: JB 215 and JB 316 or permission of instructor.)

JB 408 3 Credits Alternate Fall
Broadcast Station Management (3+0)
Overview of broadcasting station 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: Senior standing or permission of instructor. Next offered: 1991-92.)

JB 411W 3 Credits Fall, Spring
Advanced Writing for Publication (3+0) h
Writing advanced prose for publication in books or magazines. May be repeated for credit with permission of instructor. (Prerequisite: JB 311 or permission of instructor.)

JB 413 3 Credits Fall
Mass Media Law and Regulation (3+0) s
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. (Prerequisite: JB 301 or permission of instructor.)

JB 415 3 Credits Fall
Electronic News Gathering (2+2)
Electronic news gathering, electronic field production using remote videotape equipment. Scriptwriting, budgets, location sound recording, interview techniques, editing, videography, and other aspects of field production. Materials fee: $40.00. (Prerequisites: JB 316, 317.)

JB 416 3 Credits Alternate Fall
Advanced TV News Production (1+4)
In-depth experience with television news production including electronic newsgathering. Emphasis on producing broadcast quality news footage and packages. Materials fee: $40.00. (Prerequisites: JB 316, 317 and 415.)

JB 424 3 Credits Spring
Magazine Production (2+3)
Writing, photography, editing, design, layout, advertising, and circulation through the editing and publication of a magazine under journalism faculty supervision. Materials fee: $20.00. (Prerequisite: JB 301.)

JB 433 3 Credits Fall
Public Relations (3+0) h
Techniques, causes and consequences of influencing public opinion; propaganda, mass communication and public relations as instruments of economic, political, and social change. (Prerequisite: JB 301 or permission of instructor.)

JB 444W 3 Credits Fall, Spring
Advanced News Reporting (2+2) h
Advanced reporting of news with emphasis on public affairs. Develops sophisticated news judgment, writing and investigative reporting skills for print and electronic media. Laboratory fee: $10.00. (Prerequisites: JB 301, Junior standing or permission of instructor.)

Justice

JUST 110 3 Credits Fall, Spring
Introduction to Justice (3+0) s
Survey of the structure and process of the agencies of criminal justice. Includes introduction to criminology, criminal law, and the juvenile justice system. Also available via Independent Learning.

JUST 222 3 Credits Fall
Research Methods (3+0) s
(Also as PS 222)
Application of social science research methods to solving scientific and non-scientific questions arising in justice or political science. Basic methods include experimentation and survey research. (Prerequisite: JUST 110.)

JUST 250 3 Credits Fall
Origins of Law (3+0) s
(Also as PS 250)
The study of the historical, social, cultural, intellectual and political origins of the legal system, legal culture and laws of the U.S. Includes discussion of schools of jurisprudence and legal interpretation; the development of common and colonial law through constitutional interpretation; the role of legal profession; and selected current legal practices and issues.

JUST 251 3 Credits Spring
Criminology (3+0) s
The study of the major areas of deviant behavior and its relationship to society, law, and law enforcement, including the theories of crime causation. (Prerequisite: SOC 101.)

JUST 258 3 Credits Alternate Fall
Juveniles and the Law (3+0) s
Survey of the structure and process of the juvenile justice system and the major theories of juvenile delinquency. (Next offered: 1991-92.)

JUST 259 3 Credits Alternate Spring
Introduction to Public Administration (3+0) s
(Also as PS 212)
Theories and practices of public administration, especially as applied to federal agencies. Study of organization planning, and decision-making in implementing public policy. (Next offered: 1992-93.)

JUST 303 3 Credits Fall
Introduction to Legal Processes (3+0) s
(Also as PS 303)
The purpose and function of law in society, with a focus on legal reasoning and decision-making in civil cases. (Prerequisites: PS 101, JUST 110.)
JUST 310  3 Credits  Spring
Principles of Corrections (3+0)
An introduction to adult institutions, community-based programs, and theories of incarceration. Correctional programs are examined. (Prerequisite: JUST 251 or permission of instructor.)

JUST 320  Variable Credit  Fall, Spring
Practicum
A research-oriented exercise directed at the resolution of a specific problem within an agency of the criminal justice system. (May be repeated to a maximum of 6 credits.)

JUST 330  3 Credits  Spring
Law, Justice and Society (3+0)  
[Same as PS 330]
Study of moral issues related to the proper reach, extent, and enforcement of the law. (Prerequisites: PS 101, JUST 110.)

JUST 333  3 Credits  Spring
Women, Crime and Justice
Interaction of women with the American justice system focusing on women as victims, offenders and working professionals in justice agencies. (Prerequisites: JUST 110 and 251.)

JUST 340  3 Credits  Fall
Rural Justice in Alaska (3+0)
Indian justice system including historical development of the Federal/Indian relationship, constitutional basis for federal power over Indians, relationship of tribes in Alaska to the state and federal justice agencies, the effect of urban life on native peoples, the issue of cultural conflict when imposing the western system of justice on native offenders.

JUST 352  3 Credits  Fall
Criminal Law (3+0)
A study of elements, purposes, and functions of the substantive criminal law with emphasis upon historical and philosophical concepts. (Prerequisite: JUST 110.)

JUST 355  3 Credits  Spring
Procedural Law (3+0)
Emphasis upon 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. (Prerequisite: JUST 110.)

JUST 404  3 Credits  Spring
Introduction to Legal Research and Writing (3+0)  
[Same as PS 404]
Methods of legal research and preparation of legal materials. Introduction to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101, JUST 110, JUST/PS 303.)

JUST 452  3 Credits  Spring
Comparative Criminal Justice (3+0)
The study of crime problems, legal systems and the organization and performance of criminal justice agencies (police, courts, corrections, juvenile) in selected democratic, socialist and developing countries. Includes England, Soviet Union, China and Japan, selected developing countries. (Prerequisite: JUST 110 or PS 201 or PS 202 or permission of instructor.)

JUST 460  3 Credits  Fall
Justice Processes (3+0)
Major concepts of the structure and process of criminal justice revisited with emphasis on current issues. (Prerequisite: JUST 110, 251, or senior standing.)

JUST 475  3-9 Credits  Fall, Spring
Internship
Supervised work experience in criminal justice agencies. (Prerequisite: Permission of director of Intern program. Note: Department approval required for 9 credits.)

JUST 492  Variable Credit  Fall, Spring
Seminar
Various topics of current interest and importance to the justice major will be presented. Topics will be announced prior to each offering. (Prerequisites: JUST 110, senior standing or permission of instructor.)

JUST 651  3 Credits  Alternate Fall
Justice and Social Control in the Circumpolar North (3+0)  
[Same as NORS 651]

Korean

For information on studying in Korea, see Study Abroad.

KORE 101  3 Credits  Fall
KORE 102  3 Credits  Spring
Elementary Korean I and II (3+0)  
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; exploration of the cultural dimension, implicitly through language. (Prerequisite: For KORE 102, KORE 101.)

KORE 201  3 Credits  Fall
Intermediate Korean I and II (3+0)  
Continuation of KORE 102. Increasing emphasis on reading ability and cultural material. Conducted in Korean. (Prerequisite: KORE 102 or equivalent.)

KORE 232  3 Credits  Alternate Spring
Korean Culture (3+0)
An overview of Korean cultural traditions as revealed in the life styles, ways of thinking, literature, and the arts. Lectures on painting, architecture, shamanistic rituals, and performing arts accompanied by video tapes and films. (Next offered: 1992-93.)

Library Science

LS 100  1 Credit  Fall, Spring
Library and Information Strategies (1+0)
Principles of information organization and how libraries can provide access to information and scholarly resources. Emphasis on use of a library via distance delivery methods. For students who do not have direct physical access to the Rasmuson Library.

LS 101  1 Credit  Fall, Spring
Library Skills (0+0)
A course in college library skills and some resources and facilities common to academic libraries in general and to the Rasmuson Library in particular.

LS 307  1 Credit  Spring
Information Sources for Educators (1+0)
A self-paced study course providing a survey of major library reference sources and computer databases for education/education related majors. Class meets for an introductory session and a computer literature search demonstration; otherwise, the student works at his individual rate and on his own time schedule.

LS 309  1 Credit  As Demand Warrants
Information Resources (1+0)
Information organization, scholarly communication and research reporting for a specific discipline, including major disciplinary reference sources and bibliographic databases in the disciplines. This course should be taken before or during the semester when the student prepares a term paper for an upper division course. Course may be repeated when there is a change in discipline. (Prerequisite: Junior standing in specific discipline or permission of the instructor. LS 101 recommended.)

LS 382  3 Credits  Alternate Spring
History of Circumpolar Research (3+0)  
[Same as HIST 382]
Studies the history of arctic and sub-arctic sciences through geological, biological and atmospheric sciences and the people through anthropology, ethnography, linguistics, and history. Cold regions engineering and technology research in education, government and law covered. The literature and source material on these fields analyzed. (Prerequisite: HIST 110 or 115 or ANT 242 or BIOL 104 or permission of the instructor. Next offered: 1991-92.)

Linguistics

LING 101  3 Credits  Fall
Nature of Language (3+0)
The study of language: systematic analysis of human language and description of its grammatical structure, distribution, and diversity. Also available via Independent Learning.
LING 216 3 Credits Alternate Fall Languages of the World (3+0) h
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. (Next offered: 1991-92.)

LING 262 3 Credits As Demand Warrants Methods of Teaching English as a Second Language and Standard English as a Second Dialect (3+0)
(Same as ED 262)
Covers basic underlying assumptions about the nature of language, language learning, teaching characteristics of good language learners, optimal language learning environments, and what affect they have on teaching styles. Roles of the second language teacher and their appropriateness covered. Presents techniques and activities consistent with specific language teaching methods and adaptation of these methods to the needs of western Alaskan classrooms. (Prerequisite: Classroom experience.)

LING 303 3 Credits As Demand Warrants Language and Literacy Development (3+0)
(Same as ED 303)
Principles, procedures, and materials for enhancing the language development of young children. (Prerequisite: LING 240.)

LING 318 3 Credits Alternate Fall Introduction to Phonetics and Phonology (3+0)
Scientific study of human speech sounds, mechanism of their production, and sound systems of languages. (Prerequisite: Upper division standing or permission of instructor. Next offered: 1991-92.)

LING 320 3 Credits Alternate Spring Introduction to Syntactic Theory (3+0) h
Study of principles and processes of sentence construction in language. (Prerequisites: LING 101 or its equivalent, at least junior standing or permission of the instructor. Next offered: 1991-92.)

LING 340 3 Credits Every Third Spring Aspects of Bilingualism (3+0) h
Cognitive, linguistic, sociopolitical, and educational aspects of bilingualism at both the individual and societal levels, including factors contributing to language maintenance and language shift. (Prerequisite: LING 101 or permission of instructor. Next offered: 1993-94.)

LING 350 3 Credits Alternate Fall Historical Linguistics (3+0)
Introduction to comparative and historical linguistics; methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages. (Prerequisite: LING 318. Next offered: 1991-92.)

LING 410 3 Credits Alternate Fall Theory and Methods of Second Language Teaching (3+0)
Theory and practice of teaching a second language, including methodological approaches, second language acquisition theory, materials, and testing. (Next offered: 1991-92.)

LING 420 3 Credits Every Third Spring Semantics (3+0) h
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. (Prerequisite: LING 101 or permission of instructor. Next offered: 1991-92.)

LING 450 3 Credits Every Third Spring Language Policy and Planning (3+0)
Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance. (Next offered: 1993-94.)

LING 482 3 Credits Every Third Year Seminar in Linguistics (3+0)
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. (Next offered: 1993-94.)

Marine Science and Limnology

MSL 111X 3 Credits Juneau Alternate Fall The Oceans (3+0) n
Fairbanks Spring Introduction to the classic disciplines of ocean science beginning with definitions and history of oceanography. Emphasis is on descriptive biological, physical, chemical and geological marine science. Additional topics include scuba, demonstrations of marine research instrumentation, and current oceanographic topics. (Next offered: Juneau: 1991-92.)

MSL 411 3 Credits Juneau As Demand Warrants Current Topics in Oceanographic Research (3+0) Fairbanks Alternate Fall 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 100 level or above or permission of the instructor. Next offered Fairbarks: 1992-93.)

MSL 435 3 Credits Alternate Fall Acoustical Oceanography (3+0)
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. Next offered: 1991-92.)

MSL 610 3 Credits Alternate Spring Marine Biology (3+0)

MSL 611 5 Credits Alternate Summer Field Problems in Marine Biology (0+Arr)

MSL 615 3 Credits Alternate Fall Physiology of Marine Organisms (2+0)

MSL 620 4 Credits Fall Physical Oceanography (3+3)

MSL 621 3 Credits Alternate Fall Polar Marine Science (3+0)

MSL 622 3 Credits Alternate Fall Satellite Oceanography (3+0)

MSL 625 2 Credits Spring Shipboard Techniques (1+3)

MSL 629 3 Credits Alternate Fall Methods of Numerical Simulation in Fluids and Plasma (3+0)
(Same as PHYS 629)

MSL 629L 1 Credit Alternate Fall Methods of Numerical Simulation in Fluids and Plasma Lab (0+3)

MSL 630 3 Credits Spring Geological Oceanography (3+0)

MSL 640 3 Credits Alternate Spring Fisheries Oceanography (3+0)

MSL 650 3 Credits Fall Biological Oceanography (3+0)

MSL 652 3 Credits Alternate Spring Marine Ecosystems (3+0)

MSL 660 3 Credits Spring Chemical Oceanography (3+0)
(Same as CHEM 660)

MSL 661 2 Credits Spring Isotope Techniques for Aquatic Sciences (2+0)

MSL 665 3 Credits Alternate Spring Microbial Biochemistry (2+3)

MSL 670 2 Credits Alternate Fall Nutrient Dynamics (2+0)

MSL 680 3 Credits Alternate Spring Physical-Chemical Limnology (3+0)
Mathematics

No student will be permitted to enroll in a course having prerequisites if a grade lower than C is received in the prerequisite course.

DEVELOPMENTAL MATHEMATICS

DEV 050 3 Credits As Demand Warrants
Basic College Mathematics (3+0)
Operations with whole numbers, fractions, decimals and signed numbers. Percents and ratios. Evaluating algebraic expressions. Introduction to geometric figures. Metric system.

DEV 060 3 Credits As Demand Warrants
Elementary Algebra (3+0)
First year high school algebra. Evaluating and simplifying algebraic expressions, solving first degree equations and inequalities, integral exponents, polynomials, factoring, rational expressions. (Prerequisite: DEV 050 or placement.)

DEV 065 Variable Credit As Demand Warrants
Mathematics Lab
An individual tutorial lab. Content is selected according to the needs of the individual student from the topics covered in DEV 050 and DEV 060. (Prerequisite: Placement.)

DEV 070 3 Credits As Demand Warrants
Intermediate Algebra (3+0)
Second year high school algebra. Operations with rational functions, radicals, rational exponents, complex numbers, quadratic equations and inequalities, Cartesian coordinate system and graphing, systems of equations, determinants and logarithms. (Prerequisite: DEV 060 or placement.)

MATHEMATICS

MATH 107 3 Credits Fall, Spring
Elementary Functions (3+0) m
A study of algebraic, logarithmic, and exponential functions, together with selected topics from algebra. Note: No credit may be earned for more than one of MATH 107, 161, or 171. Also available via Independent Learning. (Prerequisites: Two years of high school algebra and MATH 107 placement or higher.)

MATH 108 3 Credits Fall, Spring
Trigonometry (2-3+0) m
A study of the trigonometric functions. Also available via Independent Learning. (Prerequisite: MATH 107 or concurrent registration in MATH 107.)

MATH 131X 3 Credits Fall, Spring
Concepts and Contemporary Applications of Mathematics (3+0) m
Applications of mathematics in modern life including applications of graph theory in management science; uses of probability and statistics in industry, government and science; and applications of geometry to engineering and astronomy. Problem solving emphasized. (Prerequisites: High school geometry and algebra II.)

MATH 132X 3 Credits Spring
Concepts of Mathematics (3+0) m
Mathematical thought and history for students with a limited mathematical background. Mathematical reasoning rather than formal manipulation. Topics may include number theory, topology, set theory, geometry, algebra and analysis. (Prerequisites: MATH 131X.)

MATH 161 3 Credits Fall, Spring
Algebra for Business and Economics (3+0) m
Functions of one and several variables with attention to linear, polynomial, rational, logarithmic, and exponential relationships. Geometric progressions as applied to compound interest and present value. Linear systems of equations and inequalities. Note: No credit may be earned for more than one of MATH 107, 161, or 171. (Prerequisites: Two years of high school algebra and MATH 161 placement or higher.)

MATH 181 3 Credits Finite Math (3+0) m
Topics in matrix theory including Markov chains, linear programming, simplex method. Partitions, binomial and multinomial theorems, counting techniques, probability and finite stochastic processes. May be used as a prerequisite for STAT 200. (Prerequisite: DEV 070 or placement.)

MATH 200 4 Credits Fall, Spring
MATH 201 4 Credits Fall, Spring
MATH 202 4 Credits Fall, Spring
Calculus (4+0) m
Techniques and applications of differential and integral calculus, vector analysis, partial derivatives, multiple integrals, and infinite series. Note: No credit may be earned for more than one of MATH 200, 262 or 272. MATH 200 and 201 also available via Independent Learning. (Prerequisites: MATH 107, 108.)

MATH 205 3 Credits Fall
Mathematics for Elementary School Teachers I (3+1) m
Elementary set theory, numeration systems, and algorithms of arithmetic, divisors, multiples, integers, introduction to rational numbers. Also available via Independent Learning. (Prerequisites: Two years high school mathematics, including at least one year of algebra. Restricted to B.Ed. students; others by permission of instructor.)

MATH 206 3 Credits Spring
Mathematics for Elementary School Teachers II (3+1) m
A continuation of MATH 205. Real number systems and sub-systems, logic, informal geometry, metric system, probability, and statistics. Also available via Independent Learning. (Prerequisite: MATH 205.)

MATH 215 2 Credits Spring
Introduction to Mathematical Proofs (3+0) m
Emphasis on proof techniques with topics including logic, sets, relations, equivalence induction, number theory, graph theory and congruence classes. In addition, a rigorous treatment of topics from calculus could be given. (Prerequisites: MATH 200, 201 or concurrent with 201 or instructor permission.)

MATH 262 4 Credits Fall, Spring
Calculus for Business and Economics (4+0) m
Ordinary and partial derivatives. Maxima and minima problems, including the use of Lagrange multipliers. Introduction to the integral of a function of one variable. Applications include marginal cost, productivity, revenue, point elasticity of demand, competitive/compensatory products, consumer's surplus, etc. Note: No credit may be earned for more than one of MATH 200, 262 or 272. (Prerequisite: MATH 161.)

MATH 272 3 Credits Fall
Calculus for Life Sciences (3+0) m
Differentiation and integration with applications to the life sciences. Note: No credit may be earned for more than one of MATH 200, 262 or 272. (Prerequisites: MATH 171 or 107 and 108.)

MATH 273 3 Credits Spring
Calculus for Life Sciences (3+0) m
Applications of integration. Differential and difference equations as models of real life processes. Partial differentiation. (Prerequisite: MATH 272.)

MATH 302 3 Credits Fall, Spring
Differential Equations (3+0) m
Nature and origin of differential equations, first order equations, and solutions, linear differential equations with constant coefficients, systems of equations, power series solutions, operational methods, and applications. (Prerequisite: MATH 202.)

MATH 305 3 Credits As Demand Warrants
Geometry (3+0) m
Topics selected from such fields as Euclidean and non-Euclidean plane geometry, affine geometry, projective geometry, and topology. (Prerequisite: MATH 202 or permission of instructor.)

MATH 306 3 Credits Alternate Spring
Introduction to the History and Philosophy of Mathematics (3+0) m
Includes a detailed study of certain important periods of history as examined by such thinkers as Plato, B. Russell, D. Hilbert, L.E.J. Brouwer and K. Godel. For students of mathematics, science, history and philosophy. (Prerequisite: MATH 202 or permission of instructor. Next offered: 1992-93.)

MATH 307 3 Credits Fall
Discrete Mathematics (3+0) m
Logic, counting, sets and functions, recurrence relations graphs and trees. Additional topics from probability theory. (Prerequisite: MATH 201 or 203 or permission of instructor.)

MATH 308 3 Credits Spring
Abstract Algebra (3+0) m
Theory of groups, rings and fields. (Prerequisite: MATH 215 or permission of instructor. Recommended: MATH 307 and/or MATH 314.)
MATH 310 3 Credits Fall Numerical Analysis (3+0)
Direct and iterative solutions of systems of equations, interpolation, numerical differentiation and integration, numerical solutions of ordinary differential equations, and error analysis. (Prerequisite: MATH 302 or permission of instructor. A knowledge of FORTRAN or BASIC is desirable.)

MATH 314 3 Credits Spring Linear Algebra (3+0)
Linear equations, finite dimensional vector spaces, matrices, determinants, linear transalts, point estimation, sufficient statistics, order statistics, and test of hypotheses including various criteria for tests. (Prerequisites: MATH 202 and 215. Recommended: MATH 314 and/or 308.)

MATH 315 3 Credits Fall Advanced Calculus (3+0)
A rigorous treatment of one and several dimensional calculus. Includes mappings from a-space and their continuity, differentiability and integrability properties as well as sequences and series. (Prerequisites: MATH 215 or 202 for 401; MATH 401 for 402.)

MATH 340W 3 Credits Spring Topology (3+0)
Introduction to topology, set theory, open sets, compactness, connectedness, product spaces, metric spaces and continuity. (Prerequisites: MATH 202 and 215. Recommended: MATH 314 and/or 308.)

MATH 408 3 Credits As Demand Warrants Mathematical Statistics (3+0)
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 371 and STAT 200.)

MATH 421 4 Credits Fall Applied Analysis I (4+0)
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. (Prerequisite: MATH 302.)

MATH 422 4 Credits Spring Applied Analysis II (4+0)
Topics in multivariable calculus, including boundary value problems and partial differential equations of mathematical physics, vector analysis, and potential theory. (Prerequisite: MATH 421.)

MATH 423 3 Credits As Demand Warrants Applied Mathematics (3+0)
Topics for spring term to be determined at the time of registration to fit the needs of the students. (Prerequisite: Senior standing or permission of instructor.)

MATH 460 3 Credits Fall Mathematical Modeling (3+0)
Analysis, construction, and interpretation of mathematical models. Applications to the physical, biological, and social sciences. Topics selected from combinatorics, probability, statistics, perturbation, numerical analysis, and differential equations. Students develop a modeling project. (Prerequisite: MATH 201. Recommended: One or more of MATH 302, 314, STAT 300, 401; and some programming experience.)

MATH 490 1 Credit Fall Senior Seminar (1+0)
Advanced topics selected from areas outside the usual undergraduate offerings. A substantial level of mathematical maturity is assumed. (Prerequisites: At least one of MATH 308 or 401.)

MATH 603 3 Credits Fall Real and Complex Analysis I (3+0)
MATH 604 3 Credits Spring Real and Complex Analysis II (3+0)
MATH 608 3 Credits As Demand Warrants Partial Differential Equations (3+0)
MATH 611 3 Credits Alternate Fall Advanced Linear Algebra (3+0)
MATH 612 3 Credits Alternate Spring Mathematical Physics (3+0)
(Same as PHYS 611, 612)
MATH 615 3 Credits Alternate Spring Applied Numerical Analysis (3+0)

MATH 621 3 Credits Alternate Fall Advanced Applied Analysis (3+0)
MATH 622 3 Credits As Demand Warrants Topics in Applied Analysis (3+0)
MATH 630 3 Credits Fall Advanced Linear Algebra (3+0)
MATH 631 3 Credits Spring Theory of Modern Algebra (3+0)
MATH 632 3 Credits Spring Topology (3+0)
MATH 660 3 Credits Alternate Spring Advanced Mathematical Modeling (3+0)
MATH 661 3 Credits As Demand Warrants Optimization (3+0)
(Same as CS 661)
MATH 663 3 Credits Alternate Spring Applied Combinatorics and Graph Theory (3+0)

Mechanical Engineering

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

ME 150 1 Credit Fall Aerodynamics for Pilots (1+1)
Nature of the atmosphere, elementary airfoil theory, drag and power requirements, performance computations, and introduction to stability. For those with minimum mathematical background who desire a basic understanding of flight. (Prerequisites: High school algebra and general science.)

ME 302 4 Credits Spring Mechanical Design I (3+3)
Kinematics and dynamics of mechanisms. Analysis and design of displacements, velocities, accelerations, and forces in linkages, cams, and gear systems by analytical, experimental, and computer methods. (Prerequisites: ES 208, 210.)

ME 313 3 Credits Spring Mechanical Engineering Thermodynamics (3+0)
Continuation of ES 246 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 341, 346.)

ME 321 3 Credits Fall Industrial Processes (2+3)
Manufacturing processes used in modern industry. Primary and secondary manufacturing processes, casting, hot and cold forming, machining, welding, and mass production tools and techniques as related to economic and efficient product design. Laboratory fee: $25.00.

ME 334 3 Credits Fall Elements of Material Science/Engineering (2+3)
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 106 and PHYS 212.)

ME 403 4 Credits Spring Mechanical Design II (3+2)
Design of mechanical components by analytical, experimental and computer methods. Identification of requirements and conceptual design of mechanical systems, detailed design of components, strength, life, reliability, and cost analysis. Laboratory fee: $15.00. (Prerequisites: ME 302 and ES 331.)

ME 404 3 Credits Spring Stress Analysis (3+0)
Analysis of the strength, stability and rigidity of machine components by analytical and computer methods. (Prerequisites: ES 331, MATH 302, ES 201.)

ME 408 3 Credits Fall Dynamics of Systems (2+2)
Response of mechanical, fluid, and thermal systems to internal, external, and control forces. Free and forced vibration, random vibration, self-excited vibration, control systems, and stability criteria. Non-linear systems. (Prerequisites: ES 201, 301.)
### Military Science

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<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>MILS 100</td>
<td>1</td>
<td>Fundamentals of orienteering, marksmanship, arctic survival, skiing, and snowshoeing. Emphasis on practical work. The same skills are not taught both semesters. (Corequisite: Concurrent registration in another basic military science course [MILS 111, 112, 201 or 202].)</td>
<td>Fall</td>
</tr>
<tr>
<td>MILS 111</td>
<td>2</td>
<td>U.S. Army and Society II (2+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>MILS 112</td>
<td>2</td>
<td>U.S. Army and Society II (2+0)</td>
<td>Spring</td>
</tr>
<tr>
<td>MILS 113</td>
<td>2</td>
<td>Map Reading and Orienteering (2+0)</td>
<td>Spring</td>
</tr>
<tr>
<td>MILS 201</td>
<td>2</td>
<td>U.S. Defense and World Affairs (3+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>MILS 202</td>
<td>2</td>
<td>Communications Arts for the Military Leader (2+0)</td>
<td>Spring</td>
</tr>
<tr>
<td>MILS 250</td>
<td>3</td>
<td>Basic Camp</td>
<td>Summer</td>
</tr>
<tr>
<td>MILS 301</td>
<td>3</td>
<td>Theory and Dynamics of Tactical Operations (3+1)</td>
<td>Spring</td>
</tr>
</tbody>
</table>

### Mechanics — Diesel/Heavy Equipment

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECN 101</td>
<td>7</td>
<td>As Demand Warrants Heavy Equipment I</td>
<td>Fall</td>
</tr>
<tr>
<td>MECN 102</td>
<td>7</td>
<td>Introduction to electrical and hydraulic systems, and crawler tractor undercarriage final drive and steering clutches. Materials fee: $100.00.</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>MECN 112</td>
<td>1</td>
<td>Basic Auto Maintenance (1+0) 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. Materials fee: $10.00.</td>
<td>As Demand Warrants</td>
</tr>
</tbody>
</table>

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**MILS 100** 1 Credit Fall

**MILS 200** 1 Credit Spring

Fundamentals of orienteering, marksmanship, arctic survival, skiing, and snowshoeing. Emphasis on practical work. The same skills are not taught both semesters. (Corequisite: Concurrent registration in another basic military science course [MILS 111, 112, 201 or 202].)

**MILS 111** 2 Credits Fall

U.S. Army and Society I (2+0) Origin, development, organization, and function of the American military. Structure and purpose of the U.S. Army and ROTC program and the civilian-military relationship. An introduction to chain of command and small unit organization includes characteristics of officers and their relations to subordinates.

**MILS 112** 2 Credits Spring

U.S. Army and Society II (2+0) Survey of human behavior and leadership in the army and military environment. Role of the soldier, military training, discipline, ethics, and professionalism presented. Introduction to behavioral dimensions and management techniques used by successful officer-leaders.

**MILS 113** 2 Credits Spring

Map Reading and Orienteering (2+0) Introduction to military and civilian topographical maps and their related informational content. Use of the lensatic compass and map as navigational instruments. Exercises in orienteering complement academic instruction.

**MILS 201** 2 Credits Fall

U.S. Defense and World Affairs (3+0) Effect of current world events on the military leader and defense structure. Relationship of historical and political events to the decision-making processes. Socio-political influence on military thought of the effect of geography on the economic base of a nation. Current military strengths and weaknesses of power groups.

**MILS 202** 2 Credits Spring

Communications Arts for the Military Leader (2+0) Principles of public speaking and instructional techniques. Emphasis on development of functional skills through rehearsed and unrehearsed presentations. Use of audio-visual aids. Intensive practice in developing lesson plans and skill in presentation.

**MILS 250** 3 Credits Summer

Basic Camp A six-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. (Prerequisite: At least two years of schooling remaining upon completion of camp. Admission by arrangement with professor of military science.)

**MILS 301** 3 Credits Spring

Theory and Dynamics of Tactical Operations (3+1) Concepts, principles, and techniques applicable to the doctrine of tactical operations. Emphasizes role of small unit leader in managing individuals and small units in offensive, defensive, and specialized combat operations. Practical application of performance objectives and the integration of support functions emphasized. Laboratory in leadership development. (Prerequisite: Junior standing in MILS or permission of instructor.)
COURSE DESCRIPTIONS—MINING ENGINEERING / 165

MIN 301  3 Credits
Mine Plant Design (3+0)
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 208, 307, 341.)

MIN 302  3 Credits
Underground Mine Environmental Engineering(2+3)
Analysis of underground mine ventilation systems, ventilation planning,
design and engineering control, mine ventilation network. (Prereq-
quisite: MIN 103.)

MIN 304  3 Credits
Introduction to Metallurgy (3+0)
Overview of the extractive metallurgy of gold, silver, and platinum
group metals; from gravity concentration to cyanidation and smelting.
(Prerequisites: CHEM 211, PHYS 212. Next offered: 1991-92.)

MIN 313  3 Credits
Introduction to Mineral Preparation (2+3)
Elementary theory, introduction to unit processes of liberation, con-
centration, and solid-fluid separation as applied to mineral beneficia-
tion. (Prerequisite: junior standing or permission of the instructor.
Next offered: 1991-92.)

MIN 314  3 Credits
Unit Preparation Processes (1+6)
Liberation and concentration by gravity, electro-magnetic, and electro-
static methods. Economic analysis and flowsheets for different ores
developed. (Prerequisite: MIN 313. Next offered: 1991-92.)

MIN 370  3 Credits
Rock Mechanics (2+3)
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. (Prerequisites: ES 331 and STAT 451 or equivalent.)

MIN 400  1 Credit
Practice Engineering Report
As Demand Warrants
Twelve weeks of practical work in some industry or project related to
the student's option, or equivalent. To be taken during one or more of
the summer vacations prior to the fourth year.

MIN 407  2 Credits
Mineral Industry and the Environment (2+0)
Principles and practices of mining reclamation and waste disposal.
Impact of regulations on the mineral industry and the environment.
(Prerequisite: Permission of instructor. Next offered: 1991-92)

MIN 408  3 Credits
Mineral Valuation and Economics (3+0)
Theory of sampling techniques, deposit and reserve calculations, and
analysis of mineral economic problems. (Prerequisite: Permission of
the instructor.)

MIN 409  3 Credits
Operations Research and Computer Applications in Mineral
Industry (3+0)
Use of operations research and computer techniques for understand-
ing, analysis, forecasting and optimization of mining operations and
systems. (Prerequisites: MIN 301 or concurrent registration, ES 201,
and STAT 301 or 451.)

MIN 410  3 Credits
Surface Materials Handling Systems (2+3)
The techniques and design of systems to load and transport ore, concen-
trates, and waste materials in mining and milling operations. (Pre-
requisite: Senior standing or permission of the instructor. Next offered: 1991-92.)

MIN 415  3 Credits
Coal Preparation (2+3)
Unit operations, flowsheets, washability characteristics, and control
by the current methods for coal preparation plants. Market requirements

MIN 418  3 Credits
Emission Spectroscopy, X-Ray Spectroscopy, and Atomic
Absorption (2+3)
Can be taken for any combination of parts A, B, C as demand warrants.
(Assignment by special arrangement.)

MIN 418A — Theory and application of emission spectrography: two
one-hour classes and one three-hour lab per week for five weeks. One
credit.

MIN 302  3 Credits
Mine Surveying (2+3)
Surveying principles for surface and underground control of mining
properties. Field and office procedures for preparation of maps and
engineering data. (Prerequisites: MATH 107, 108.)
**MIN 410B** — Theory and application of x-ray spectroscopy and diffractometry; two one-hour classes and one three-hour lab per week for five weeks. One credit.

**MIN 410C** — Theory and application of atomic absorption spectrophotometry; two one-hour classes and one three-hour lab per week for five weeks. One credit.

**MIN 433** 3 Credits Alternate Fall
*Mining Access, Safety and Environmental Law*
History of mining law. Access to property, safety and environmental laws (and court decisions) as they pertain to mining. (Prerequisite: Senior standing or permission of instructor. Next offered: 1991-92.)

**MIN 443** 3 Credits Fall
*Rock Fragmentation (3+0)*
Selection and design of modern mining rock breaking and disintegrating techniques. In particular, cutting, drilling, blasting, water jets and other methods are covered. (Prerequisite: MIN 370.)

**MIN 445** 3 Credits Fall
*Design of Surface Mines for Conventional and Arctic Conditions (3+0)*
Surface mining methods. Principles and reclamation techniques, design of surface mine infrastructure. (Prerequisite: MIN 443 or concurrent registration.)

**MIN 446** 3 Credits Fall
*Underground Mining Methods and Their Design (3+0)*
Design of main development openings; mining methods such as room and pillar, open stoping, supported stopes and caving systems; selection of mining method and mine planning processes covered. (Prerequisites: MIN 301, 302, and 370.)

**MIN 447** 3 Credits Fall
*Mining Methods for Placer and Offshore Deposits (3+0)*
Design of placer and offshore mining methods. Occurrence properties and mineral content of placer and offshore deposits. Underground mining methods for frozen placer deposits. (Prerequisites: MIN 301, senior standing or permission of the instructor.)

**MIN 472** 3 Credits Alternate Spring
*Ground Control (3+0)*
Stability and design for ground control of surface and underground mining excavations; reinforcement and monitoring systems for openings constructed in rock mass. Construction in swelling rock and frozen ground, underground hazards (bursts and water inflow), monitoring of deformation and stresses associated with the opening's presence. (Prerequisites: MIN 370, 443. Next offered: 1991-92.)

**MIN 490** 2 Credits Spring
*Mining Design Project (1+3)*
Design of mine layout including extraction and beneficiation and economic evaluation of the complete mining cycle. (Prerequisites: MIN 408, 445, 446, and 447; MIN 408 can be taken concurrently.)

**MIN 621** 3 Credits Fall
*Advanced Mineral Economics (3+0)*

**MIN 631** 4 Credits Alternate Fall
*Research Methods in Mineral Engineering (3+3)*

**MIN 635** 3 Credits Spring
*Geostatistical Ore Reserve Estimation (2+3)*
(Same as GE 635)

**MIN 637** 3 Credits Alternate Fall
*Mine Systems Simulation (2+3)*

**MIN 646** 3 Credits Alternate Spring
*Mining Engineering in the Arctic (3+0)*

**MIN 647** 2 Credits Alternate Fall
*Advanced Underground Mine Design (1+3)*

**MIN 652** 3 Credits Alternate Spring
*Numerical Methods in Mine Ventilation (2+3)*

**MIN 670** 3 Credits Alternate Spring
*Optimization Models in the Mineral Industry (3+0)*

**MIN 673** 3 Credits Alternate Fall
*Advanced Rock Mechanics (2+3)*

**MIN 674** 3 Credits Alternate Spring
*Advanced Ground Control (2+3)*

**MIN 688** 1 Credit Fall
*Graduate Seminar I (1+0)*
(Same as MPR 888)

**MIN 689** 1 Credit Spring
*Graduate Seminar II (1+0)*

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**Music**

**APPLIED MUSIC**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
</table>
| MUS 161, 162 | 2 or 4 | Fall, Spring | Recital
| MUS 261, 262 | 2 or 4 | Fall, Spring | Recital
| MUS 361, 362 | 2 or 4 | Fall, Spring | Recital
| MUS 461, 462 | 2 or 4 | Fall, Spring | Recital

Private instruction in piano, organ, voice, orchestral and band instruments, or guitar. Private instruction shall consist of one private lesson and one master class per week. Music performance majors may enroll for four credits. All others will normally enroll for two credits. See accompanying box for private lesson fees. (Prerequisite: Admission by audition. Course may not be audited. Credit-No Credit grading not permitted.)

**MUS 190** 0 Credit Fall, Spring
*Recital Attendance (1+0)*
Recital and concerts attendance.

**MUS 390** 0 Credit Fall, Spring
*Junior Recital*
Half-length solo music performance recital. (Prerequisites: MUS 262 or equivalent, junior standing in music study, permission of instructor.)

**MUS 490** 0 Credit Fall, Spring
*Senior Recital*
Full-length solo music recital. (Prerequisites: MUS 362 or equivalent, senior standing in music study, MUS 390 or equivalent, permission of instructor.)

**MUS 661** 2 or 4 Credits Fall, Spring
*Advanced Private Lessons*
Private instruction as arranged. See accompanying box for private lesson fees.
### CLASS LESSONS AND APPLIED MUSIC FEES

**MUS 151 - Class Lessons**  
Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: $70.00  
Lesson fees for music majors enrolled in 12 or more credits: $35.00

**MUS 153 - Functional Piano**  
Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: $20.00  
Lesson fees for music majors enrolled in 12 or more credits: $35.00

**MUS 161-462, 661 - Private Lessons**  
Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: $145.00  
Lesson fees for music majors enrolled in 12 or more credits: $75.00

For music majors, any combination of the above fees shall not exceed a maximum charge of $105.00.

### MUSIC ENSEMBLES AND CLASS LESSONS

**MUS 101**  
1 Credit  
Choral Society (0+3) h  
Fall, Spring

**MUS 151**  
1 Credit  
Class Lesson (0+3) h  
Fall, Spring

**MUS 153**  
1 Credit  
Functional Piano (1+0) h  
Fall, Spring

**MUS 203**  
1 Credit  
Orchestra (0+3) h  
(Admission by audition.)  
Fall, Spring

**MUS 222**  
1 Credit  
"Choir of the North" (0+3) h  
(Admission by audition.)  
Fall, Spring

**MUS 253**  
0 Credit  
Piano Proficiency (0+1)  
Final phase of completion of piano proficiency examination. (Prerequisite: MUS 153 and permission of instructor.)  
Fall, Spring

**MUS 307**  
1 Credit  
Chamber Music (0+3) h  
String, brass, or woodwind chamber music, piano chamber music and accompanying; stage band, and Madrigal singers. (Prerequisite: Permission of instructor.)  
Fall, Spring

**MUS 313**  
1, 2, 3 Credits  
Opera Workshop (0+3, 6 or 9) h  
Fall, Spring

**MUS 317**  
1 Credit  
Arctic Chamber Orchestra (0+3) h  
Chamber Music. (Admission by audition.)  
Fall, Spring

**MUS 606**  
1-2 Credits  
Advanced Chamber Music (0+3)-(1+3)  
As Demand Warrants

### MUSIC THEORY, MUSIC HISTORY AND MUSIC EDUCATION

**MUS 103**  
3 Credits  
Music Fundamentals (3+0) h  
An introductory study of the language of music. Includes basic notation, melodic and rhythmic writing, scales, bass and treble clefs, and basic harmony. Also available via Independent Learning.  
Fall, Spring

**MUS 123**  
3 Credits  
Appreciation of Music (3+0) h  
A guide to the richer enjoyment of classical music through a study of the main periods, styles, and composers from the time of the Gregorian chant to the present.  
Spring

**MUS 124**  
3 Credits  
Music in World Cultures (3+0) h  
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.  
Fall

**MUS 131**  
2 Credits  
Basic Theory (1+2) h  
First semester: Intensive training in fundamentals of music, pitch and rhythm notation, scales, modes, triads, and techniques of harmonization. Second semester: Concentration upon acquisition of skills in harmonization and techniques of formal and harmonic analysis. (Prerequisites: For MUS 131, concurrent enrollment in 133; For MUS 132, 134 unless exempted by music theory placement test.)  
Spring

**MUS 132**  
2 Credits  
Basic Ear Training (2+0) h  
Ear training skills including sight reading, sight singing, error detection, and dictation. Use of programmed materials in a laboratory situation in addition to classroom instruction. (Prerequisite: Concurrent enrollment in MUS 131 or 132 unless exempted by music theory placement examination.)  
Fall

**MUS 200X**  
3 Credits  
Artistic Appreciation: Interrelation of Art, Drama, and Music (3+0) h  
(Same as ART 200X and THR 200X)  
Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends.  
Fall

**MUS 221**  
3 Credits  
History of Music (3+0) h  
Fall semester: Music before 1750. Spring semester: Music since 1750. (Prerequisites: MUS 131 and 132 or permission of the instructor.)  
Spring

**MUS 223**  
3 Credits  
Spring  
Native Alaskan Music (3+0) h  
Eskimo and Indian dance and song styles in Alaska. Emphasis on the sound, effect, and purpose unique to each and the collection methods, analysis, and the development of a broad musical perspective.  
Fall

**MUS 231**  
2 Credits  
Advanced Theory (1+2) h  
Continued study of harmony and musical form through analysis of representative works from the standard repertoire. The second semester is devoted to study and synthesis of 20th century stylistic and harmonic idioms. (Prerequisites: Concurrent enrollment in MUS 233 for 231 and 234 for 232 unless exempted by music theory placement test.)  
Fall

**MUS 233**  
2 Credits  
Advanced Ear Training (0+2) h  
Continued training in sight singing and melodic dictation skills begun in MUS 133 and 134. Harmonic dictation and error detection skills also included. (Prerequisites: Concurrent enrollment in MUS 231 for 233 and 232 for 234 required unless exempted by music theory placement test.)  
Fall

**MUS 309**  
3 Credits  
Elementary School Music Methods (3+0)  
(Same as ED 309)  
Principles, procedures, and materials for teaching music to children at the elementary level. (Prerequisite: ED 310.)  
Fall

**MUS 315**  
2 Credits  
Music Methods and Techniques (1+2)  
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. (Prerequisite: Permission of instructor.)  
Fall

**MUS 331**  
3 Credits  
Alternate Spring  
Form and Analysis (3+0) h  
Formal and stylistic musical elements in historical context with special application to problems of proper stylistic performance. (Prerequisite: MUS 232 or permission of the instructor. Next offered: 1991-92.)
### Natural Resources Management

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Period</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRM 101</td>
<td>Natural Resources Conservation and Policy (3+0)</td>
<td>3</td>
<td>Fall</td>
<td>Concepts, management practices and issues/concerns associated with the conservation of natural resources; natural and social science aspects of resource conservation and policy; resource commentaries and discussion sessions provide opportunities for developing a personal philosophy related to natural resources. Majors in all fields welcome. (Prerequisite: Placement in ENGL 111.)</td>
</tr>
<tr>
<td>NRM 201</td>
<td>Processes of Natural Resources Management (3+0)</td>
<td>3</td>
<td>Fall</td>
<td>Institutions and processes of management, public and private agencies and native regional corporations. (Prerequisites: NRM 101 and sophomore standing.)</td>
</tr>
</tbody>
</table>
| NRM 220     | Elements of Information Transfer for Natural Resource Managers (3+0)  | 3       | Spring     | Information transfer methods, including the extension process, identification, and general management techniques.  
Supervised individual study on a farm, in a greenhouse, managed forest, agency or business, or another approved location. (Prerequisite: Natural Resource Management majors only.) |
| NRM 231     | Introduction to Agronomy and Horticulture (2+3)                      | 3       | Fall       | Principles of plant science as related to production of economic crops, with special attention to those grown in Alaska. (Prerequisite: A general botany course or permission of instructor.) |
| NRM 222     | Introduction to Geographic Information Systems (2+3)                 | 3       | Spring     | Use of principles, procedures, techniques and equipment to survive extreme arctic conditions and to assist in safe recovery. Lab required. Materials fee: $35.00. |
| NRM 235     | Elements of Weather (3+0)                                           | 3       | As Demand Warrants        | (Same as AVTV 235)  
Weather as it affects aircraft operators with an emphasis on Interior Alaska.         |
| NRM 241     | Introduction to Geographic Information Systems (2+3)                 | 3       | Spring     | Review of hardware and software components, exploration of several applications and introduction to data structures and basic functions. Several different GIS systems considered. (Prerequisite: Knowledge of PC's or Unix workstations desirable.) |
| NRM 251     | Silvics and Dendrology (3+3)                                        | 4       | Spring     | Addresses ecological requirements and characteristics of tree species of the Northern Forest and western North American forest; silvicultural 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. Laboratory fee: $10.00. (Prerequisites: BIOL 105, 106 and 271 or permission of instructor.) |
| NRM 277     | Introduction to Conservation Biology (3+0)                           | 3       | As Demand Warrants        | (Same as BIOL 277)  
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 105, 106. Next offered: 1991-92.) |
NRM 300  1-6 Credits  Fall, Spring, Summer
Internship in Natural Resources Management
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 101, junior standing, 3.0 gpa, permission of instructor, and an approved internship plan.)

NRM 301OW  3 Credits  Fall
(Same as AVTY 301)
Air Worker Strategies (3+0)
Knowledge and skills to use general aviation aircraft as a tool for field transportation, field logistics or as a platform for instrumentation and data collection. For pilots or air workers who use aviation in natural resources management. (Prerequisite: AVTY 101 or 111.)

NRM 302  2 Credits  Spring
Aerial Data Collection (2+0)
(Same as AVTY 302)
Uses of aircraft to collect resource data. Ocular observations through operation of remote sensing data equipment. Mission design and sampling strategies. (Prerequisite: AVTY 301.)

NRM 302L  1 Credit  Spring
Aerial Data Collection Laboratory (0+2)
(Same as AVTY 302)
Lab portion of NRM 302. (Prerequisites: AVTY 301, 302.)

NRM 305  3 Credits  Alternate Fall
Nutrition for Children, Adolescents and Adults (3+0)
Application of basic nutrition principles to health and well-being of children, adolescents and adults including nutritional and related health problems found among Alaskans. (Prerequisite: BIOL 105 or CHEM 105 or equivalent, or permission of instructor. Next offered: 1991-92.)

NRM 310O  3 Credits  Spring
Agricultural Concepts (3+0)
Concepts and techniques of agriculture in its broadest sense: history of food and fiber in world cultures; agricultural policy; symbiosis with natural ecosystems; food and fiber production techniques; agribusiness principals and world markets. Group projects stress analyses of food and fiber production and markets within U.S. policy constraints. (Prerequisite: BIOL 105, 106.)

NRM 312  3 Credits  Alternate Fall
Introduction to Range Management (3+0)
Applied ecological treatment of soil, plant and grazing animal relationships on uncultivated lands. Origin of the discipline, management practices, important rangelands of North America; emphasis on Alaska's rangelands and grazers. (Prerequisites: BIOL 105, 106, BOT 239 or permission of instructor; NRM 320, 321 recommended. Next offered: 1992-93.)

NRM 313  4 Credits  Alternate Spring
Introduction to Plant Pathology (3+3)
Plant pathology: non-parasitic and parasitic causes of plant diseases; methods of plant infection and mechanism of plant defenses; epidemiology and disease control. (Prerequisites: BIOL 105, 106; BOT 239 recommended. Next offered: 1992-93.)

NRM 320  3 Credits  Alternate Fall
Introduction to Animal Science (2+3)

NRM 321  3 Credits  Alternate Fall
Applied Animal Nutrition (2+3)
Application of feeding standards and feedstuff analysis to the nutrition of farm animals. Comparative anatomy of the digestive system of pig, horse, and cow. (Prerequisite: A course in general biology. Next offered: 1991-92.)

NRM 340  3 Credits  Spring
Natural Resources Measurements (2+3)
Techniques and instrumentation used to measure and inventory natural resources, including land, timber, range, wildlife, water, and recreation resources. (Prerequisite: Junior standing or permission of instructor.)

NRM 341  4 Credits  Fall
Techniques in Geographic Information Systems (3+3)
(Same as GEOG 341)
GIS algorithms, data structures, advanced computational topics and analysis of error. Examination of ways traditional planning and management theories and techniques can be implemented in GIS. (Prerequisite: NRM 241.)

NRM 360  3 Credits  Alternate Spring
Outdoor Recreation Planning (3+0)
Allocations of natural resources for recreational purposes, including concomitant services. Macrobehavioral patterns influencing the allocation of resources. (Prerequisites: NRM 101 and ECON 235 or equivalent, or permission of instructor. Next offered: 1991-92.)

NRM 370  3 Credits  Fall
Introduction to Watershed Management (2+3)
The hydrologic cycle and the influence of land management techniques on water quantity, quality, and timing. Water yield, soil erosion and sediment pollution, snowpack management, and land use alternatives. (Prerequisites: NRM 101 and GEOS 101 or permission of instructor.)

NRM 380  3 Credits  Spring
Soils (2+3)
Soil development and classification; physical and chemical properties; soil survey and spatial distribution. (Prerequisites: BIOL 105, 106, ECON 235 or equivalent, or permission of instructor.)

NRM 390  3 Credits  Alternate Spring
Natural Resource Policies (3+0)
Origin and significance of public policies in land, water, forest, wildlife, minerals, petroleum, agricultural and aesthetic resources. Focuses on Alaskan and relevant national issues. (Prerequisite: Upper division or graduate standing. Next offered: 1991-92.)

NRM 402  3 Credits  Spring
Aircraft Management (3+0)
(Same as AVTY 402)
Securing, dispatching, and monitoring aircraft operations. Safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling. (Prerequisite: AVTY 301.)

NRM 403  4 Credits  Alternate Spring
Managing Food Production Systems (3+3)
Principles of the firm applied to development of a diversified plan for food production. Budget and cash flows, using a computer. (Prerequisites: NRM 310, 320, basic economics [can be taken concurrently], and basic knowledge of operation of a personal computer, or permission of instructor. Next offered: 1992-93.)

NRM 411  3 Credits  Alternate Fall
Plant Propagation (2+3)
Plant propagation, including seeds, bulbs, divisions, layers, cuttings, buds, grafts, and rootstocks. Where possible, emphasis will be placed on the propagation of indigenous plants. (Prerequisite: NRM 211 or permission of instructor. Next offered: 1992-93.)

NRM 412  3 Credits  Alternate Fall
Field Crop Production (3+0)
Agronomic principles and practices involved in the production, storage, marketing, and utilization of field crops. (Prerequisite: NRM 211. Next offered: 1992-93.)

NRM 420  3 Credits  Alternate Spring
Animal Nutrition and Metabolism (3+0)
Nutrition and metabolism of domestic animals: ruminant and monogastric. (Prerequisites: CHEM 105, 106; biochemistry recommended. Next offered: 1989-90.)

NRM 425  2 Credits  Spring
Alaska's Mining Industry (2+0)
Social, economic, historical, and ecological aspects of the industry. Emphasis on the multi-disciplinary nature of natural resource management and planning, and coordination of agency and private involvement. (Prerequisites: NRM 101, junior standing or permission of instructor.)

NRM 430  3 Credits  Spring
Land-Use Planning (3+0)
History, legal framework, principles, processes, and practices of land use planning. Important Alaskan issues and problems. (Prerequisite: Upper division standing.)

NRM 450  3 Credits  Alternate Fall
Forest Management (3+0)
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, decision making. (Prerequisites: NRM 251, ECON 235 or equivalent, or permission of instructor. Next offered: 1992-93.)
NRM 451W 3 credits Alternate Spring
Silviculture (2+3)
Examines biological, environmental, and silvicultural considerations essential for successful regeneration and maintenance of boreal and western North American forests. For persons in land management, including timber, woodlot, wildfire habitat, streamside, aesthetics. Provides intense look at science and art of forest stand management, involves considerable critical writing. Field trips required. (Prerequisites: NRM 251, BOL 271, junior standing or permission of the instructor. Next offered: 1992-93.)

NRM 452 3 credits Alternate Spring
Forest Protection (3+0)
Principles and practical management systems for protection from fire, insects, and diseases. Factors in managing forest ecosystems, problems and techniques important in high latitude forests, especially in Alaska. (Prerequisites: BOL 105, 106, 271, BOT 239; NRM 251 or instructor's permission. Next offered: 1991-92.)

NRM 453 3 credits Alternate Fall
Harvesting and Utilization of Forest Products (3+0)
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. (Prerequisites: NRM 101 and 251 or permission of instructor. Next offered: 1992-93.)

NRM 460W 3 credits Fall
Principles of Outdoor Recreation Management (2+3)
Theories, practices, economics, and problems fundamental to the use of land and related natural resources for recreation. (Prerequisite: Junior standing or permission of the instructor.)

NRM 461 3 credits Alternate Spring
Interpretive Services (3+0)
Naturalists and other visitor programs in outdoor recreation areas: philosophy, planning, and development of interpretive programs; resources, agencies, users, interpretive media, and program evaluation. (Prerequisite: Junior standing or permission of instructor. Next offered: 1992-93.)

NRM 462 3 credits Fall
Alaskan Environmental Education (3+0)
(Same as ED 462)
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 camps, short courses, and workshops for individuals of any age. (Prerequisite: Junior standing or permission of instructor.)

NRM 480 3 credits Alternate Fall
Soil Conservation (3+0)
Managing soil to maintain or increase crop productivity while minimizing soil losses from wind and water erosion. (Prerequisite: NRM 380. Next offered: 1991-92.)

NRM 485 3 credits Alternate Spring
Soil Biology (3+0)
Major groups of organisms in the soil and their interrelationships; the major biological processes which take place in the soil and their significance to soil productivity, plant growth, and environmental quality; and methodology for studying soil organisms and soil biological processes. (Prerequisites: A course in biology or microbiology and a course in soils or permission of instructor. Next offered: 1991-92.)

NRM 607 3 credits Alternate Spring
Biotechnology (3+0)
(Same as EQE 607)

NRM 630 3 credits Fall
Planning Theory (3+0)

NRM 631 3 credits Spring
Planning Practice (3+0)

NRM 640 3 credits Alternate Spring
Simulation and Modeling in Resource Management (3+0)

NRM 641 3 credits Alternate Spring
Natural Resources Applications of Remote Sensing (2+3)

NRM 670 3 credits Alternate Fall
Biometeorology (3+0)

NRM 672 2 credits Alternate Fall
Dynamics of Nitrogen in Forest Ecosystems (2+0)

NRM 675 3 credits Alternate Fall
Applied Ecosystem Science (3+0)

NRM 680 3 credits Alternate Fall
Environmental Decision-Making (3+0)

NRM 681 3 credits Alternate Spring
Natural Protection and Management (3+0)

NRM 690 3 credits Alternate Fall
Advanced Topics in Resource Management (3+0)

Northern Studies

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the U.S.S.R., see Study Abroad.

NORS 484 3 credits Alternate Spring
Seminar in Northern Studies (3+0)
An interdisciplinary seminar focusing on topics relating to the North, including the karstic, the peopling and the socioeconomics of the area. Specialists in the various fields will assign readings and conduct discussions. (Prerequisite: At least junior standing or permission of instructor. Next offered: 1991-92.)

NORS 600 3 credits Fall
Perspectives on the North (3+0)
(Same as HIST 600)

NORS 601 3 credits Fall
Research Methods and Sources in the North (3+0)

NORS 610 3 credits Fall
Northern Indigenous Peoples and Contemporary Issues (3+0)
(Same as ANTH 610)

NORS 614 3 credits Alternate Spring
Human Adaptation to the Circumpolar North (3+0)
(Same as PSY 614)

NORS 620 3 credits Alternate Fall
Images of the North (3+0)
(Same as ENG 620)

NORS 630 3 credits Spring
Economic Issues of the Circumpolar North (3+0)
(Same as ECON 630)

NORS 637 3 credits Alternate Fall
Geography of Northern Development (3+0)
(Same as GEOG 637)

NORS 650 3 credits Alternate Spring
Comparative Government and Politics in the Circumpolar North (3+0)
(Same as PS 650)

NORS 651 3 credits Alternate Fall
Justice and Social Control in the Circumpolar North (3+0)
(Same as JUST 651)

NORS 652 3 credits Alternate Spring
International Relations of the North (3+0)
(Same as PS 652)

NORS 690 3 credits Alternate Spring
Researching and Writing Public Northern History (1+3)
(Same as HIST 690)

Office Professions

OP 072 1 Credit As Demand Warrants
Alphabetic Filing (1+0)
Organizing records alphabetically according to standard indexing rules for names of individuals, organizations and business firms. Open lab.

OP 073 1 Credit As Demand Warrants
Spelling and Vocabulary (1+0)
Skill development in spelling correctly and using general and specialized terms in business. Open lab.

OP 080 1 Credit As Demand Warrants
Keyboarding (0+3)
Basic keyboarding skills with emphasis on correct technique and development of speed and accuracy. Open lab. Materials fee: $10.00.

OP 082 1 Credit As Demand Warrants
Clerical Accounting I (1+0)
Acquaints students with the relationship between accounting and business, steps of the accounting cycle, and principles and procedures involved in handling cash. Open lab.
OP 083  1 Credit  As Demand Warrants
Clerical Accounting II (1+0)
Overview of accounting systems. Topics include use of journals and
subsidary ledgers, preparation of financial statements and end-of-the-
period procedures. (Prerequisite: OP 082.)

OP 086  1 Credit  As Demand Warrants
Reception Skills (1+0)
Training and practice in office receptionist skills. For persons seeking
an entry level position. Open lab.

OP 100  3 Credits  As Demand Warrants
Alphabetic Shorthand (3+0)
Introduces alphabetic shorthand, including alphabet, shortcuts,
phasing, and other abbreviating devices.

OP 101  4 Credits  As Demand Warrants
Shorthand Principles I (4+1)
Instruction and practice in Gregg Shorthand, Series 90 in order to
develop ability to read shorthand and transcribe dictation taken at
a minimum of 60 wpm on practiced material.

OP 102  4 Credits  As Demand Warrants
Shorthand Principles II (4+0)
Development of ability to construct new outlines from dictation under
stress of dictation at 80 to 100 wpm. (Prerequisites: OP 101 and 103 or
permission of instructor.)

OP 103  1-3 Credits  As Demand Warrants
Keyboarding I/Beginning Typewriting (1-3+0)
Basic keyboarding skills with emphasis on correct techniques and
development of speed and accuracy. Introduction to centering, typing
of personal and business letters, envelopes, simple tables and manu-
scripts. For those with no previous typing training. May be taken in 1-
credit segments in the Office Professions lab. Materials fee: $10.00.

OP 104  1 Credit  As Demand Warrants
Typing Skill Building (1+0)
Supervised training to improve speed and/or accuracy on straight and
numerical copy. May be repeated up to 3 credits. Materials fee: $3.00.
(Prerequisite: OP 103 or permission of instructor.)

OP 105  3 Credits  As Demand Warrants
Keyboarding II/Intermediate Typewriting (3+0)
Instruction and training to attain at least minimal typing skill, experi-
ence and knowledge necessary for typist beginning an office career.
Lab arranged. Materials fee: $5.00. (Prerequisite: OP 103 or one year
high school typing or permission of instructor.)

OP 106  3 Credits  As Demand Warrants
Keyboarding III/Advanced Typewriting (3+0)
Training and practice to achieve level of typing skill, experience,
knowledge and production output required in business office posi-
tions. Lab arranged. Materials fee: $10.00. (Prerequisite: OP 105 or
permission of instructor.)

OP 107  3 Credits  As Demand Warrants
Medical Terminology (3+0)
Study of medical terminology, including analysis of its roots and or-
iginis. Anatomical, diagnostic, operative, and laboratory terminology
of the human body systems, and selected medical specialties. Emphasis
on spelling and pronunciation.

OP 108  4 Credits  As Demand Warrants
Medical Office Procedures I (4+0)
Introduction and orientation to business aspects of medical offices.
Includes medical law and ethics, reception and telephone procedures,
medical economics, orientation to medical profession and patient care.

OP 109  1 Credit  As Demand Warrants
Proofreading (1+0)
Provides instruction and practice in finding, making and correcting
errors commonly made but often overlooked in business communica-
 ration. Practice in recognizing frequently-made errors, where they are
likely to occur and special techniques of finding them. Open lab.

OP 110  3 Credits  As Demand Warrants
Office Procedures (3+0)
Duties and responsibilities of general office employees including filing,
processing mail, telephone communication, meeting the public, office
supplies, banking, employment procedures and grooming.

OP 112  2 Credits  As Demand Warrants
Introduction to Word Processing (2+0)
Basic procedures in typing documents on a microcomputer using a word
processing program.

OP 128  2 Credits  As Demand Warrants
Word Processing/Displaywriter (2+0)
Word processing training. All machine functions are covered and
applied to revision and application problems in simulated word
processing setting. Materials fee: $10.00. (Prerequisite: OP 103 or per-
mission of instructor. Should type 35 wpm prior to entry.)

OP 131  3 Credits  As Demand Warrants
Business English (3+0)
Comprehensive review of grammar, punctuation, capitalization and
spelling, with emphasis on business and office occupations.

OP 157  1 Credit  As Demand Warrants
Introduction to Office Computers (1+0)
Provides an introduction to personal computers as well as the basics of
spreadsheets, data bases and word processing software commonly used
in an office setting. Materials fee: $10.00.

OP 201  3 Credits  As Demand Warrants
Shorthand III-Speed Dictation and Transcription (3+0)
Methods of strengthening typing and shorthand skills to improve speed
and accuracy of transcription and to develop a high degree of shorthand
fluency. (Prerequisite: OP 102, 106 or equivalent.)

OP 203  2 Credits  As Demand Warrants
Calculating Machines (2+0)
Provides basic operating knowledge of the electronic calculator for
such applications as discounting, interest and percent of change, pro-
rating, commissions and payroll. Development of proficiency in use
of machines for initial job placement. Open lab. (Prerequisite: ABUS
153 strongly recommended.)

OP 207  2 Credits  As Demand Warrants
Machine Transcription (2+0)
Training in machine transcription with emphasis on mailable copies.
Review of language skills and vocabulary included. Materials fee:
$5.00. (Prerequisite: OP 103 or permission of instructor.)

OP 210  3 Credits  As Demand Warrants
Legal Typewriting (3+0)
Provides legal procedures background and skill improvement in typew-
writing and transcription. Emphasis on understanding legal processes
as well as developing expertise in typewriting and office procedures.
Materials fee: $5.00. (Prerequisite: OP 105 or permission of instructor.)

OP 211  2 Credits  As Demand Warrants
Medical Typing (2+0)
Provides training for employment as an office worker, particularly as a
forms typist, in a hospital or medical office or after completing
qualifications as a medical assistant or secretary. (Prerequisite: OP
105 or demonstration of equivalent proficiency.)

OP 212  2 Credits  As Demand Warrants
Intermediate Word Processing (2+0)
Practice in producing typical office communications and reports using
and operating a microcomputer and word processing program.

OP 214  1 Credit  As Demand Warrants
Medical Data Transcription (1+0)
Instruction and practice in formatting medical papers including a
Medicare form, an admission form, 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. Materials fee: $5.00. (Prerequisite: OP 103 and
207.)
Petroleum Engineering

Pete 103 2 Credits Fall
Survey of the Energy Industries (2+0)
Overview of global energy supply and demand, alternate energy options, and petroleum production technology.

Pete 205 3 Credits Fall
Introduction to Petroleum Drilling and Productions (3+0)
Fundamental principles of drilling, well completions, production engineering. Field trips to Alaskan oil fields if possible. (Prerequisite: Math 200.)

Pete 211 1-2 Credits Spring
Drilling Laboratory (0+3 or 6)
Measurement of physical properties of drilling mud: optional BOP certification and drilling rig operation experience during spring break. (Prerequisite: Pete 205 or permission of instructor.)

Pete 301 3 Credits Fall
Reservoir Rock Properties (2+3)
Definition and measurement of the physical properties of reservoir rocks: porosity, permeability, lithology, fluid saturations, relative permeability.

Pete 302 3 Credits Spring
Well Logging (3+0)
Comprehensive treatment of modern well logging methods including formation and production logging tools and techniques and basic concepts of log interpretation. (Prerequisite: Junior standing in engineering or geoscience.)

Pete 305 4 Credits Spring
Underground Fluids Behavior (3+3)
Chemical, physical, and thermodynamic properties of water, oil, and gas in petroleum formations; classification of petroleum reservoirs by fluid phase characterization and interpretation of PVT reports for reservoir fluid samples. (Prerequisites: Pete 301, ES 346.)

Pete 321 3 Credits Fall
Advanced Thermodynamics for Petroleum Engineers (3+0)
Thermodynamics in the transport of petroleum fluids from the formation to the surface with an emphasis on multi-phase, multi-component equilibrium processes. (Prerequisites: Math 302, Chem 321 and ES 346 and concurrent registration in ES 341.)

Pete 400 1 Credit Fall
Practical Engineering Report (0+3)
Report on practical experience from petroleum engineering summer job. (Prerequisite: Senior standing in engineering or geoscience, or permission of instructor.)

Pete 407 4 Credits Fall
Petroleum Production Engineering (3+3)
Well completion, workovers, surface and subsurface equipment design, sucker-rod pumping, gas lift, stimulation techniques, sand control. Laboratory includes measurement of gas and oil streams. (Prerequisites: ES 346 and concurrent enrollment in ES 341.)

Pete 421 3 Credits Fall
Subsurface Engineering (3+0)
Application of well logs to delineate reservoir rock properties and its spatial variations. Estimation of petroleum in place. Impact of facies variation and depositional models for the design of production policies. Impacts of formation structure on enhanced oil recovery methods. Reservoir surveillance. (Prerequisites: Pete 301, 302, and GEOS 370)

Pete 426 4 Credits Spring
Drilling Engineering and Laboratory (3+3)
Principles of drilling, drilling fluids, mud, drilling problems, mud logging, drill stem testing, rig types, rig design and selection. Drilling optimization. Well control. (Prerequisites: ES 391, 341.)

Pete 431 2 Credits Fall
Natural Gas Engineering (2+0)
Natural gas production and condensate reservoirs. Design of processing, transportation, distribution and flow measurement systems. (Prerequisite: Pete 301.)

Pete 456 3 Credits Spring
Petroleum Evaluation and Economic Decisions (3+3)
Economic appraisal methods for oil field developmental project evaluations including risk analysis, probability, and statistics in decision making and evaluations. Case studies. (Prerequisites: Math 202 and Pete 476.)

Pete 466 3 Credits Spring
Petroleum Recovery Methods (3+0)
Flow and physicalchemical principles of oil recovery by water, chemical, thermal and miscible floods. Prediction of recovery for each of these methods. (Prerequisites: Pete 476 and ME 441.)

Pete 476 3 Credits Fall Spring
Petroleum Reservoir Engineering (3+0)
Quantitative study and prediction of the behavior of oil and gas reservoirs under primary, secondary, and tertiary recovery mechanisms. (Prerequisites: Pete 301, 405.)

Pete 478 2 Credits Spring
Well Test Analysis (2+0)
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 476 and Math 302)

Pete 489 2 Credits Fall Spring
Reservoir Simulation (2+0)
The theory and use of computer reservoir simulation in petroleum reservoir and production engineering. (Prerequisites: Math 310 and Pete 476.)

Pete 607 3 Credits Fall
Advanced Production Engineering (3+0)

Pete 610 3 Credits Fall
Advanced Reservoir Engineering (3+0)

Pete 630 3 Credits Spring
Waterflooding (3+0)

Pete 661 3 Credits As Demand Warrants
Advanced Well Testing (3+0)
Philosophy

PHIL 201 3 Credits Fall, Spring
Introduction to Philosophy (3+0) h
Terms, concepts, and problems as reflected in writings of great philosophers. (Prerequisite: Sophomore standing or permission of the instructor.)

PHIL 202 3 Credits Spring
Introduction to Eastern Philosophy (3+0) h
Basic assumptions, problems and systems of the major philosophical traditions of the Far East. (Prerequisite: PHIL 201 or permission of the instructor.)

PHIL 204 3 Credits Fall, Spring
Introduction to Logic (3+0) h
Principles of deductive and inductive logic and application of these principles to critical thinking in science and other fields; brief introduction to symbolic logic and its application. (Prerequisite: Sophomore standing.)

PHIL 321 3 Credits Alternate Fall
Aesthetics (3+0) h
The nature of aesthetic experience in poetry, music, painting, sculpture and architecture; studies in relation to artistic production and the role of art in society. (Prerequisite: PHIL 201. Next offered: 1991-92.)

PHIL 322X 3 Credits Spring
Ethics (3+0) h
Examination of ethical theories and basic issues in moral thought. (Prerequisite: PHIL 201. Next offered: 1991-92.)

PHIL 3410 3 Credits Alternate Fall
Epistemology (3+0) h
The nature of knowledge, truth and certainty. (Prerequisite: PHIL 201. Next offered: 1991-92.)

PHIL 342 3 Credits Alternate Spring
Metaphysics (3+0) h
Theories of reality and their relationship to science, philosophy and religion. (Prerequisite: PHIL 201. Next offered: 1991-92.)

PHIL 351 3 Credits Fall
History of Philosophy and Science (3+0) h
Ancient and medieval periods. (Prerequisite: Six credits in philosophy and/or natural and social science.)

PHIL 352 3 Credits Spring
History of Philosophy and Science (3+0) h
Renaissance, modern, and recent periods. (Prerequisite: Six credits in philosophy and/or natural and social science.)

PHIL 381 3 Credits As Demand Warrants
Topics in Logic (3+0) h
An advanced explanation of problems, philosophies and approaches in logic, including classical, symbolic and comparative logic. (Prerequisites: Completion of PHIL 204 or its equivalent and permission of the instructor.)

PHIL 471 3 Credits Alternate Fall
Contemporary Philosophical Problems (3+0) h
Ideological issues facing the modern world. (Prerequisite: Nine credits philosophy or permission of the instructor. Next offered: 1991-92.)

PHIL 481 3 Credits Alternate Spring
Philosophy of Science (3+0) h
Comparison and discussion of various contemporary methodological positions. (Prerequisite: Junior standing. Next offered: 1991-92.)

Physical Education

PER 100-199 1 Credit Fall, Spring
Physical Activities and Instruction (0-3)
Instruction, practice, and activity in a variety of physical activities, sports, and dance in separate sections. Courses may be taken for credit one time only. Laboratory fees as indicated

PER 101 - Multifitness Conditioning
PER 102 - Running for Fitness
PER 103 - Cycling for Fitness
PER 104 - Walking for Fitness
PER 105 - Weight Training for Fitness
PER 106 - Aerobics
PER 107 - Low Impact Aerobics
PER 108 - Power Lifting
PER 109 - Beginning Ice Skating
PER 110 - Intermediate Ice Skating
PER 111 - Ice Skating for Conditioning
PER 112 - Beginning Ice Dancing
PER 113 - Intermediate Ice Dancing
PER 114 - Advanced Ice Dancing
PER 115 - Beginning Ice Hockey
PER 116 - Intermediate Ice Hockey
PER 117 - Speed Skating
PER 118 - Curling
PER 119 - Beginning Swimming
PER 120 - Intermediate Swimming
PER 121 - Advanced Swimming
PER 122 - Conditioning Swimming
PER 123 - Aqua Aerobics
PER 124 - Water Polo
PER 125 - Springboard Diving
PER 126 - Synchronized Swimming
PER 127 - Beginning Fencing
PER 128 - Intermediate Fencing
PER 129 - Advanced Fencing
PER 130 - Beginning Aikido
PER 131 - Intermediate Aikido
PER 132 - Advanced Aikido
PER 133 - Beginning Taekwondo
PER 134 - Intermediate Taekwondo
PER 135 - Advanced Taekwondo
PER 136 - Beginning Tai Chi Chuan
PER 137 - Intermediate Tai Chi Chuan
PER 138 - Advanced Tai Chi Chuan
PER 139 - Beginning Yoga
PER 140 - Intermediate Yoga
PER 141 - Advanced Yoga
PER 142 - Beginning Karate
PER 143 - Intermediate Karate
PER 144 - Advanced Karate
PER 145 - Basketball
PER 146 - Volleyball
PER 147 - Soccer
PER 148 - Team Handball
PER 149 - Orienteering
PER 150 - Canoeing
PER 151 - Kayaking
PER 152 — Rock Climbing
PER 153 — Mountaineering
PER 154 — Racquetball
PER 155 — Tennis
PER 156 — Table Tennis
PER 157 — Badminton
PER 158 — Billiards
PER 159 — Golf
PER 161 — Beginning Bowling (Lab fee: $35)
PER 166 — Intermediate Bowling (Lab fee: $35)
PER 167 — Advanced Bowling (Lab fee: $35)
PER 168 — Beginning Pistol Marksmanship (Lab fee: $35)
PER 169 — Intermediate Pistol Marksmanship (Lab fee: $35)
PER 170 — Advanced Pistol Marksmanship (Lab fee: $35)
PER 171 — Beginning Rifle Marksmanship (Lab fee: $35)
PER 172 — Intermediate Rifle Marksmanship (Lab fee: $35)
PER 173 — Advanced Rifle Marksmanship (Lab fee: $35)
PER 174 — Beginning Ballet
PER 175 — Intermediate Ballet
PER 176 — Advanced Ballet
PER 177 — Beginning Jazz Dance
PER 178 — Intermediate Jazz Dance
PER 179 — Advanced Jazz Dance
PER 180 — Modern Dance
PER 181 — Ballroom Dance
PER 182 — Western Dance
PER 183 — Folk Dance
PER 184 — Square Dance
PER 187 — Cross-Country Skiing
PER 188 — Downhill Skiing
PER 189 — Ski Mountaineering
PER 190 — Recreational Fitness Activities
PER 193 —Varsity Athletics

PE 201 — 2 Credits
Introduction to the Human Movement Sciences (2+0)
The interrelationship of the biological sciences, sociopsychological,
historical and philosophical foundations and the role of the humanities
in physical activity, fitness, sport and dance. Clarification of career
possibilities included. (Next offered: 1992-93.)

PE 203 — 2 Credits
Beginning Bowling (Lab fee: $35)
Intermediate Bowling (Lab fee: $35)
Advanced Bowling (Lab fee: $35)
Beginning Pistol Marksmanship (Lab fee: $35)
Intermediate Pistol Marksmanship (Lab fee: $35)
Advanced Pistol Marksmanship (Lab fee: $35)
Beginning Rifle Marksmanship (Lab fee: $35)
Intermediate Rifle Marksmanship (Lab fee: $35)
Advanced Rifle Marksmanship (Lab fee: $35)
Beginning Ballet
Intermediate Ballet
Advanced Ballet
Beginning Jazz Dance
Intermediate Jazz Dance
Advanced Jazz Dance
Modern Dance
Ballroom Dance
Western Dance
Folk Dance
Square Dance
Cross-Country Skiing
Downhill Skiing
Ski Mountaineering
Recreational Fitness Activities
Varsity Athletics

PE 204 — 2 Credits
Advanced Life Saving (1+3)
Knowledge and skills to provide aid and treatment in aquatic emergencies.
Instruction in American Red Cross-Cardiopulmonary Resuscitation,
Advanced Lifesaving, Advanced Swimming, and Basic First Aid.
Certification fee: $2.00 covers American Red Cross Advanced Life
Saving Certification. (Prerequisite: Swim Test. Next offered: 1991-92.)

PE 205 — 2 Credits
Water Safety (1+3)
Review and practice of swimming and lifesaving skills. Includes review
of courses instructors are eligible to teach, teaching methods
relative to those courses, general teaching methods, and practice
training.

PE 213 — 2 Credits
Fundamentals of Ice Sports (1+3)
Basic skills in ice sports for adult and youth groups. Emphasis on
developing personal performance skills and safety procedures for
effective class management. (Next offered: 1992-93.) *Meets for 7 weeks.

PE 214 — 2 Credits
Fundamentals of Snow Sports (1+3)
Basic skills in snow sports for adult and youth groups. Emphasis on
developing personal performance skills and safety procedures for

PE 215 — 2 Credits
Fundamentals of Volleyball (1+3)
Basic skills in volleyball for adult and youth groups. Emphasis on
developing personal performance skills and safety procedures for

PE 216 — 1 Credit
Fundamentals of Rhythms (1+3)
Basic skills in rhythms for adult and youth groups. Emphasis on developing

PE 217 — 1 Credit
Fundamentals of Recreational Activities (1+3)
Basic skills in recreational activities for adult and youth groups. Emphasis
on developing personal performance skills and safety procedures for effective class management. (Next offered: 1991-92.) *Meets for 7 weeks.

PE 218 — 1 Credit
Fundamentals of Soccer (1+3)
Basic skills in soccer for adult and youth groups. Emphasis on developing

PE 219 — 1 Credit
Fundamentals of Aquatics (1+3)
Basic skills in aquatics for adult and youth groups. Emphasis on developing

PE 220 — 1 Credit
Fundamentals of Wrestling (1+3)
Basic skills in wrestling for adult and youth groups. Emphasis on developing

PE 221 — 1 Credit
Fundamentals of Gymnastics (1+3)
Basic skills in gymnastics for adult and youth groups. Emphasis on developing

PE 222 — 1 Credit
Fundamentals of Track and Field (1+3)
Basic skills in track and field for adult and youth groups. Emphasis on developing

PE 223 — 3 Credits
Analysis of Human Movement (3+0)
Qualitative analysis of sport and dance through principles derived from
the biological and physical sciences and directed towards understanding
and improving human performance. (Next offered: 1992-93.)

PE 246 — 3 Credits
Advanced First Aid (1+3)
Knowledge and skills to provide efficient aid and treatment in emergencies.
Progresses through the Basic, Standard, and Advanced First Aid
packages of the American Red Cross. Successful completion leads to
certification by the American Red Cross in Advanced First Aid.
Materials Fee: $10.00.

PE 300 — 1 Credit
Advanced Theory and Techniques for Teaching Gymnastics (1+3)
In-depth study of advanced skills, strategies, and analysis in gymnastics.

PE 302 — 1 Credit
Advanced Theory and Techniques for Teaching Basketball (1+3)
In-depth study of advanced skills, strategies, and analysis in basketball.

PE 303 — 1 Credit
Advanced Theory and Techniques for Teaching Ice Sports (1+3)
In-depth study of advanced skills, strategies, and analysis in ice sports.

PE 304 — 1 Credit
Advanced Theory and Techniques for Teaching Snow Sports (1+3)
In-depth study of advanced skills, strategies, and analysis in teaching

PE 305 — 1 Credit
Advanced Theory and Techniques for Teaching Volleyball (1+3)
In-depth study of advanced skills, strategies, and analysis in volleyball.
COURSE DESCRIPTIONS—PHYSICS

PE 306 1 Credit  Alternate Spring*  
Techniques in Teaching Creative Dance (1+3)  
Skill and practice in organizing creative dance experiences for all age groups. Emphasis on learning techniques will free people to create from their own movement vocabularies. Some emphasis on correct body alignment and techniques of movement. (Prerequisites: PE 216. Next offered: 1991-92.)  
*Meets for 7 weeks.

PE 307 1 Credit  Alternate Spring*  
Techniques in Camping and Outdoor Recreation (1+3)  
In-depth study of advanced skills and organizational techniques in camping and outdoor recreation. One weekend campout required. Laborary fee: $10.00. (Prerequisite: PE 217. Next offered: 1992-93.)  
*Meets for 7 weeks.

PE 308 1 Credit  Every third Fall*  
Techniques in Track and Field (1+3)  
In-depth study of advanced skills and analysis of track and field. (Prerequisite: PE 222. Next offered: 1993-94.)  
*Meets for 7 weeks.

PE 309 2 Credits  Alternate Spring  
Aquatic Instructor (1+3)  
Knowledge and skills to teach swimming to children and adults, beginning through advanced swimmer and lifesaving. For American Red Cross Water Safety Instructor Certificate. Certification fee: $5.00. (Prerequisites: Current American Red Cross Lifesaving Certificate and swim test.) Next offered: 1991-92.

PE 310 1 Credit  Every third Spring*  
Techniques in Teaching Folk and Square Dance (1+3)  
Techniques and practical application in organizing and teaching varying age and ability levels in folk and square dance. Includes partner and non-partner folk dances, some fed dances and traditional square dance, and practice in calling and calling. (Prerequisite: PE 219. Next offered: 1993-94.)  
*Meets for 7 weeks.

PE 316 3 Credits  Alternate Fall  
Motor Development (3+0)  

PE 317 3 Credits  Every third Spring  
Motor Learning (3+0)  

PE 321 1 Credit  Fall, Spring  
PRACTICUM IN PHYSICAL EDUCATION (0+3)  
Supervised training as apprentice instructor or leader in university class or within the community. Planning and conducting activities with increasing responsibility. Class may be repeated only once. (Prerequisites: Appro- 300 level technique courses and junior standing or equivalent back- ground.)

PE 327 2 Credits  Spring  
Movement Activities for Children (2+0)  
Sports, games, and fundamental movement activities appropriate for the child in the environment of the home, playground, or elementary school. Course includes progressions in activities and participation in selected activities. For parents, teachers, or others who work with children up to age 12. (Prerequisites: PSY 101, sophomore standing.)

PE 400 2 Credits  Every third Fall  
Judging and Coaching Gymnastics (1+3)  
Techniques for teaching, coaching, judging, and administering men's and women's gymnastics, including apparatus, tumbling, and floor exercise. (Prerequisite: Junior standing or previous gymnastic experience. Next offered: 1993-94.)

PE 401 2 Credits  Every third Fall  
Theory of Basketball (2+0)  
Techniques of playing and coaching men's and women's basketball, including theories of offense and defense, contest strategies and psychology of individual and team play. (Prerequisites: PE 302 and junior standing. Next offered: 1993-94.)

PE 405 2 Credits  Alternate Fall  
Concepts and Design of Physical Fitness Programs (1½+1½)  
Problems, methods of achievement, and maintenance of physical fitness. Assessment of personal fitness status, participation in selected fitness activities, and acquisition of skills in basic physical fitness activity. (Prerequisites: BIOL 111, 112. Next offered 1991-92.)

PE 406 3 Credits  Alternate Fall  
Methods of Teaching Physical Education (2+3)  
Philosophy, curriculum development, methods for facilitating learning and controlling behavior, measurement and evaluation, observations, and teaching laboratories in elementary and secondary school physical education. (Prerequisite: ED 330. Next offered: 1991-92.)

PE 408 2 Credits  Every third Spring  
Aquatics Program Management (2+0)  
Aquatic program planning and implementation, competitive swim team coaching and administration, and management of swimming pools. (Prerequisite: PE 219 or 300. Next offered: 1991-92.)

PE 411 3 Credits  Alternate Spring  
History and Philosophy of Sport and Physical Activity (3+0)  
Examines the contributions of physical activity to survival, artistic development, and classic and popular culture as they have influenced the role of physical activity in the United States. (Prerequisite: Junior standing. Next offered 1993-92.)

PE 412 3 Credits  Alternate Fall  
Principles and Problems in Athletic Coaching (3+0)  
Philosophy and objectives of athletic competition at various age levels. Roles and responsibilities of the coach. Problems of athletic coaching and management of athletes and their training. For those who plan to take leadership or coaching roles in school or community athletic programs. (Prerequisite: Junior standing. Next offered: 1992-93.)

PE 416 4 Credits  Alternate Fall  
Physiology of Exercise (3+3)  
Study of the responses and adaptations of the human body to physical work and systematically applied stressors, including effects of environmental stressors, especially those specific to northern regions. (Prerequisite: BIOL 111, 112. Next offered: 1992-93.)

PE 425 3 Credits  Alternate Fall  
Administration in Physical Education and Athletics (3+0)  
Principles and problems of planning, organizing, directing, and evaluating school programs in physical education, intramural sports, and interscholastic athletics. (Prerequisite: Junior standing. Next offered: 1991-92.)

PE 432 4 Credits  Alternate Fall  
Biomechanics of Human Performance (3+3)  
Mechanical analysis of human movement, focusing internally on musculo-skeletal interactions and externally on the body with the environment. (Prerequisites: BIOL 111, 112, MATH 107. Next offered: 1991-92.)

PE 440 3 Credits  Alternate Spring  
Adapted Programs of Physical Activity (3+0)  
Theory and practical guidelines for developing adapted movement activities and programs for persons who are impaired, disabled, or handicapped: "mainstreaming" such individuals in regular programs in physical education and recreation. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1992-93.)

PE 442 3 Credits  Alternate Spring  
Care and Prevention of Athletic Injuries (3+0)  
Scientific bases for the care and prevention of sports and physical activity injuries. Rationale and strategies for taping and wrapping for injury prevention and rehabilitation, techniques in pre-activity conditioning and post-injury reconditioning, and equipment safety. (Prerequisites: BIOL 111, 112, PE 205 or permission of instructor. Next offered: 1995-96.)

PE 443 3 Credits  Alternate Spring  
Measurements and Evaluation in Physical Education (3+0)  
Evaluation theory and application including basic statistical formu- lation of measurable behavioral objectives, written test construction, survey of fitness and skill tests, their selection, administration and interpretation of results, and use of computer programs to calculate statistical values. (Prerequisite: Completion of 8 credits from PE 211 through 222. Next offered: 1992-93.)

Physics

PHYS 101 3 Credits  Spring  
Introduction to Space Science (3+0)  
An exploration in non-mathematical terms of the discoveries of the space age for the general student. Topics include solar-terrestrial relations, the earth's upper atmosphere and magnetosphere (including the aurora), stratosphere, troposphere, and space communications, with emphasis on fundamental physical processes.
PHYS 103X 4 Credits Fall
College Physics (3+3) n
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. Laboratory fee: $5.00. (Prerequisites: High school algebra and geometry or instructor permission.)

PHYS 104X 4 Credits Spring
College Physics (3+3) n
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. Laboratory fee: $5.00. (Prerequisites: PHYS 103X or instructor permission.)

PHYS 113 1 Credit Fall
Concepts of Physics (1+0)
Review of experimental and theoretical studies of fundamental interactions of nature leading to major advances in human knowledge. Application of these discoveries to modern technologies, such as solid state electronics, lasers, holography, nuclear fusion, medical diagnostics: remote sensing, etc.

PHYS 211X 4 Credits Fall, Spring
General Physics (3+3) n
Vectors, kinematics, Newton’s Laws, momentum, work, energy, rotational motion, gravitational forces, fluids, heat, temperature, Laws of Thermodynamics, and electromagnetic waves. For engineering, mathematics and physical science majors. Laboratory fee: $5.00. (Prerequisite: Concurrent enrollment in MATH 201 or instructor permission.)

PHYS 212X 4 Credits Fall, Spring
General Physics (3+3) n
Heat, temperature, Laws of Thermodynamics, Coulomb’s Law, electrical potential, capacitance, Kirchhoff’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. Laboratory fee: $5.00. (Prerequisite: PHYS 211X or instructor permission.)

PHYS 213 4 Credits Spring
Elementary Modern Physics (3+3) n
Geometrical and physical optics: elementary-level modern physics including special relativity, atomic physics, nuclear physics, solid-state physics, quantum mechanics, photon mechanics, theory of wave mechanics, and concepts of wave mechanics. (Prerequisites: PHYS 211X and 212X or permission of instructor.)

PHYS 275 3 Credits Fall
Astronomy (3+0) n
Science elective for the general student. Fall semester: The solar system, laws of motion, nature of radiation, astronomical instruments, the earth, the moon, planets, comets and meteoroids, Spring semester: Stellar astronomy, physical properties and distribution of stars, interstellar matter, evolution of stars, galactic structure, and cosmology. Evening demonstrations both semesters. (Prerequisites: Sophomore standing, high school algebra and trigonometry, PHYS 275 for 276 or permission of instructor.)

PHYS 311 4 Credits Fall
Mechanics (4+0) n
Newtonian mechanics, motion of systems of particles, rigid body statics and dynamics, moving and accelerated coordinate systems, Lagrangian and Hamiltonian mechanics, continuum mechanics, theory of small vibrations, tensor analysis, rigid body rotations, special theory of relativity. (Prerequisites: PHYS 211X and at least concurrent enrollment in MATH 302; PHYS 311 for 312, or permission of instructor.)

PHYS 313 4 Credits Fall
Thermodynamics and Statistical Physics (4+0) n
Thermodynamic systems, equations of state, the laws of thermodynamics, changes of phase, thermodynamics of reactions, kinetic theory, and introduction to statistical mechanics. (Prerequisite: PHYS 212X or permission of instructor.)

PHYS 331 3 Credits Fall
Electricity and Magnetism (3+0) n
Electrostatics, dielectrics, magnetostatics, magnetic materials, and electromagnetism. Maxwell’s equations, electromagnetic waves, radiation, optical physics, and selected topics from electronics. (Prerequisites: PHYS 212X and MATH 202 or permission of instructor.)

PHYS 381 2 Credits Fall
PHYS 382 2 Credits Spring
Modern Physics (4+0) n
Relativity, elementary particles, quantum theory, atomic and molecular physics, x-rays, and nuclear physics. (Prerequisites: PHYS 213, MATH 302 and MATH 314, PHYS 411 for 412, or permission of instructor.)

PHYS 445 4 Credits Spring
Solid State Physics and Physical Electronics (4+0) n
Theory of matter in the solid state and the interaction of matter with particles and waves. (Prerequisites: MATH 302, 314 and PHYS 411 or permission of the instructor.)

PHYS 462 4 Credits Fall
Geometrical and Physical Optics (3+3) n
Geometrical optics, interference and diffraction theory, non-linear optics, Fourier optics, and coherent wave theory. (Prerequisites: MATH 302, 314 and PHYS 331 or permission of instructor.)

PHYS 611 3 Credits Alternate Fall
PHYS 612 3 Credits Alternate Spring
Mathematical Physics (3+0) (Same as MATH 611-612)

PHYS 621 3 Credits Alternate Fall
PHYS 622 3 Credits Alternate Spring
Statistical Mechanics (3+0)

PHYS 626 3 Credits Alternate Fall
PHYS 627 3 Credits Alternate Spring
Fundamentals of Plasma Physics (3+0)

PHYS 628 3 Credits Alternate Fall
Digital Time Series Analysis (3+0)

PHYS 629 3 Credits Alternate Fall
Methods of Numerical Simulation in Fluids and Plasma (3+0) (Same as MSL 629)

PHYS 631 3 Credits Alternate Fall
PHYS 632 3 Credits Alternate Spring
Electromagnetic Theory (3+0)

PHYS 640 3 Credits Alternate Spring
Auroral Physics (3+0)

PHYS 645 3 Credits Alternate Fall
Fundamentals of Geophysical Fluid Dynamics (3+0)

PHYS 650 3 Credits Alternate Fall
Aeronomy (3+0)

PHYS 651 3 Credits Alternate Fall
PHYS 652 3 Credits Alternate Spring
Quantum Mechanics (3+0)

PHYS 672 3 Credits Alternate Fall
PHYS 673 3 Credits Alternate Spring
Magnetospheric Physics (3+0)
Space Physics (3+0)

Political Science

PS 100X 3 Credits (Same as ECON 100X) Fall, Spring
Political Economy (3+0) s
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.

PS 101 3 Credits Fall, Spring
Introduction to American Government and Politics (3+0) s
Principles, institutions, and practices of American national government: the Constitution, federalism, interest groups, parties, public opinion, and elections. Also available via Independent Learning.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS 101</td>
<td>3</td>
<td>Fall, Spring</td>
<td>Introduction to American Government and Politics (3+0) s A survey of outstanding problems in policy areas of defense, energy, economic policy, civil rights, technology, social welfare, business regulation, pollution, and education.</td>
</tr>
<tr>
<td>PS 110</td>
<td>1</td>
<td>Fall, Spring</td>
<td>Parliamentary Procedures (1+0) (Same as ANS 110) Rules and principles of parliamentary procedures and application to group decision-making processes.</td>
</tr>
<tr>
<td>PS 201</td>
<td>3</td>
<td>Fall</td>
<td>Comparative Politics: Western Political Systems (3+0) s Introductory survey of modern European government and politics. Emphasis on western democracies.</td>
</tr>
<tr>
<td>PS 202</td>
<td>3</td>
<td>Spring</td>
<td>Comparative Politics: Non-Western Political Systems (3+0) s Introductory survey of governments and politics of developing nations in the Third World, including Democratic, Communist, post-Communist, military, and other authoritarian regimes.</td>
</tr>
<tr>
<td>PS 210</td>
<td>3</td>
<td>Spring</td>
<td>Alaska Government and Politics (3+0) s A comprehensive introduction to the state's government and politics, including: land claims, and community politics from the Alaska Native political systems to those of other circumpolar societies. Includes discussion of how policy processes work and how policy analysis is conducted. Examples of policy issues from recent cases, especially in Alaska. (Prerequisites: PS 101 and junior standing. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>PS 211</td>
<td>3</td>
<td>Alternate Fall</td>
<td>State and Local Government (3+0) s Forms, functions, and policies of state and local governments in the United States. Intergovernmental relations and comparative analysis of the policies of the 50 states. (Next offered: 1991-92.)</td>
</tr>
<tr>
<td>PS 212</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Introduction to Public Administration (3+0) s (Same as JUST 259) Theories and practice of public administration, especially as applied to federal agencies. Study of organization, planning, and decision making in implementing public policy. (Next offered: 1992-93.)</td>
</tr>
<tr>
<td>PS 222</td>
<td>3</td>
<td>Fall</td>
<td>Research Methods (3+0) s (Same as JUST 222) Application of social science research methods to solving scientific and non-scientific problems. Analysis of concepts and techniques in social science research. (Prerequisite: PS 101.)</td>
</tr>
<tr>
<td>PS 250</td>
<td>3</td>
<td>Fall</td>
<td>Origins of Law (3+0) s (Same as JUST 250) The historical, social, cultural, intellectual and political origins of the legal system, legal culture and laws of the U.S. Includes discussion of legal culture and laws of the U.S. and the impact of federal policies on non-federal systems. (Prerequisites: PS 101 or consent of instructor. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>PS 263</td>
<td>3</td>
<td>Fall</td>
<td>Alaska Native Politics (3+0) s 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, and contemporary conflict resolution. (Prerequisite: PS 101 or permission of instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>PS 301</td>
<td>3</td>
<td>Alternate Fall</td>
<td>American Presidency (3+0) s The institution of the presidency in the American political system. (Prerequisites: PS 101 or consent of instructor. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>PS 302</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Congress and Public Policy (3+0) s The American Congress in the political system. (Prerequisite: PS 101. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>PS 303</td>
<td>3</td>
<td>Fall</td>
<td>Introduction to Legal Processes (3+0) s (Same as JUST 303) The purpose and function of law in society, with a focus on legal reasoning and decision-making in civil cases. (Prerequisites: PS 101, JUST 110.)</td>
</tr>
<tr>
<td>PS 310</td>
<td>3</td>
<td>Alternate Fall</td>
<td>The Politics of Post-Industrial States (3+0) s Political systems of societies which have completed their industrial revolutions. The problem of the welfare state, the growth of the welfare state, the end of ideology, the loss of the social system, identity in homogeneous societies. Countries: the U.S., the U.K., Britain, Japan, Canada, Soviet Union, Germany, Scandinavian nations, Japan. (Prerequisites: PS 101 or 102 or consent of instructor. PS 201 strongly recommended. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>PS 311</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Government and Politics of the Soviet Union and Eastern Europe (3+0) s Survey of political institutions and processes in the Soviet Union and Eastern European countries. (Prerequisites: PS 201 or instructor permission. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>PS 312</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Government and Politics of China and East Asia (3+0) s Modern East Asia (including China, Japan and Southeast Asia) politics and society, including governmental institutions, political processes and regional and global foreign relations. (Prerequisites: PS 201 or consent of instructor. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>PS 315</td>
<td>3</td>
<td>Alternate Spring</td>
<td>American Political Thought (3+0) s Political ideas in the United States from colonial times to the present. Includes: revolutionary ideas, constitutionalism, nature of the Union, Progressive movement, pragmatism. (Prerequisite: PS 101 or consent of instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>PS 321</td>
<td>3</td>
<td>Fall</td>
<td>International Politics (3+0) s International political theory; means of influence and power in international politics; arms control and disarmament; international economic systems; contemporary conflict resolution and strategic issues such as the movement for a nuclear-free zone in the Arctic. (Prerequisites: PS 101 and 102 or permission of instructor.)</td>
</tr>
<tr>
<td>PS 322</td>
<td>3</td>
<td>Alternate Spring</td>
<td>International Law and Organizations (3+0) s Development of international law (for example, the Law of the Seas, Regional and international organizations; non-state actors in the world system (for example, the Inuit Circumpolar Conference, Greenpeace); International political integration. (Prerequisites: PS 101 and 102 or permission of instructor. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>PS 325</td>
<td>3</td>
<td>Spring</td>
<td>Native Self-Government (3+0) s (Same as ANS 325) 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: HIST 100, PS 263.)</td>
</tr>
<tr>
<td>PS 330</td>
<td>3</td>
<td>Spring</td>
<td>Law, Justice and Society (3+0) s (Same as JUST 330) Study of moral issues related to the proper reach, extent, and enforcement of the moral law. (Prerequisites: PS 101, JUST 110.)</td>
</tr>
<tr>
<td>PS 401</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Political Behavior: Organizations (3+0) s Focus on political parties, labor unions, business, and ethnic associations. Class research project on impact of organizations in modern political life. (Prerequisites: PS 101, 102 and 400 or permission of instructor. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>PS 402</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Political Behavior: Individuals (3+0) s Focus on political parties, labor unions, business, and ethnic associations. Class research project on impact of political opinions, attitudes, beliefs, and values in modern political life. (Prerequisites: PS 101 and 102 or permission of instructor. PS 222 strongly recommended. Next offered: 1992-93.)</td>
</tr>
<tr>
<td>PS 403</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Public Policy (3+0) s Discussion of how policy process works and how policy analysis is conducted. Examples of policy issues from recent cases, especially in Alaska. (Prerequisites: PS 101 and junior standing. Next offered: 1991-92.)</td>
</tr>
</tbody>
</table>
PS 404 3 Credits
Introduction to Legal Research and Writing (3+0)
(Same as JUST 404)
Spring
Methods of legal research and preparation of legal materials. Introduction to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101, JUST 110, JUST/PS 303.)

PS 411 3 Credits
Classical Political Theory (3+0) b
Alternate Fall

PS 412 3 Credits
Modern Political Theory (3+0) s
(Prerequisitse: PS 101 and 102 or consent of instructor; PS 411 strongly recommended. Next offered: 1991-92.)

PS 415 3 Credits
Contemporary Political Theory (3+0) s
Theories of types of democratic regimes, including individualist and socialist. Analysis of underlying values and structural differences, drawing upon contemporary national state cases. (Prerequisites: PS 101 and 102 or permission of instructor. Next offered: 1992-93.)

PS 420 3 Credits
Environmental Politics (3+0) s
Alternate Fall
Examination of policies of federal environmental policy decisions focusing on the environmental movement as a force reshaping American society. Topics include limits to growth thesis, impact assessment policy, and wilderness politics. (Next offered: 1992-93.)

PS 435 3 Credits
The Supreme Court and Judicial Process (3+0) s
Alternate Fall
Role of the Supreme Court and lower federal courts in the development of American law with emphasis on the influence of organizational, social, political, and economic factors on the behavior of courts. (Prerequisites: PS 101 and 102 or permission of instructor. Next offered: 1992-93.)

PS 436 3 Credits
The Court and Civil Liberties (3+0) s
Alternate Spring
Origin and development of civil and political liberties: responsibility of the branches of government and the people for their maintenance. (Prerequisite: PS 101. Next offered: 1992-93.)

PS 437 3 Credits
American Foreign Policy (3+0) s
Alternate Spring
U.S. foreign policy in the post-war world, including development of policy (domestic and foreign influences), administration of political and military policies, policy coordination and evaluation of policy effectiveness in the nuclear age. (Prerequisites: PS 101 and 102 or permission of instructor. Next offered: 1991-92.)

PS 439 3 Credits
Comparative Aboriginal Rights and Policies (3+0) s
Alternate Spring
(Same as ANS 450)
A case-study approach to 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 instructor's permission. Next offered: 1991-92.)

PS 475 3 Credits
Internship in Public Affairs (3+0)
Fall, Spring
Individual study of public agencies or organizations through actual experience. (Administration by permission of the instructor.)

PS 481 3 Credits
Geopolitics and the International Environment (3+0) s
As Demand Warrants
Survey of the relationship of the international environment and world politics, with a focus on resource politics. Energy policies, including bilateral and multi-lateral negotiations (concerning acid rain and global warming, for example) and negotiations between host states and transnational corporations over management resource exploitation. (Prerequisites: PS 101, or 102 or permission of instructor; PS 321 strongly recommended.)

PS 500 3 Credits
Comparative Government and Politics in the Circumpolar North (3+0)
Alternate Spring
(Same as NORS 650)

PS 502 3 Credits
International Relations of the North (3+0)
Alternate Spring
(Same as NORS 652)

PSY 101 3 Credits
Introduction to Psychology (3+0) s
Fall, Spring
Principles of general psychology emphasizing natural science and social science orientation. Cultural, environmental, hereditary, and psychological basis for integrated behavior. Visual, auditory 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. Also available via Independent Learning or via television as a self-paced, computer-based course special telecourse fee: $20.00.

PSY 110 1 Credit
Orientation to College (2+0)
(Same as DEVS 110)
An overview of the university as an institution with strategies and resources available to ensure a successful transition to college life in general, and specifically, the University of Alaska Fairbanks. Topics include academic and developmental skill building strategies, such as study skills, time management, career planning and stress management. An examination of Alaska’s past, present and future from social, cultural, political, and economic perspectives, including Pacific Rim and international/global issues. Graded Pass/Fail.

PSY 116 2 Credits
Loosening the Grip: A Survey of Alcohol Information (2+0)
As Demand Warrants
Factors affecting alcohol use; the effects of alcohol; the symptoms and causes of alcoholism and alcoholic behavior; intervention and treatment; and special treatment considerations (the family of the alcoholic special populations and prevention).

PSY 161 3 Credits
Counseling Skills I (3+0)
As Demand Warrants
PSY 182 3 Credits
Counseling Skills II (3+0)
As Demand Warrants
Cross-Cultural Psychology (3+0) s
Alternate Spring
Concepts, premises, and methods of cross-cultural psychology emphasizing its use in testing, extending, and refining Western psychological theories. Topics include perceptions, cognition, social behavior, psychopathology, and social change as they relate to cultural variation. (Prerequisite: PSY 101. Next offered: 1991-92.)

PSY 200 3 Credits
Psychology of Adjustment (3+0) s
As Demand Warrants
PSY 210 3 Credits
PSY 220 3 Credits
PSY 240 3 Credits
Cross-Cultural Psychology (3+0) s
Developmental Psychology in Cross-Cultural Perspective (3+0) s
Fall, Spring
Fall, Spring
Fall, Spring
Individual development examined from both a psychological and cross-cultural perspective. Development of cognition, personality, and social behavior; attention to relevant research on those cultures found in Alaska. Also available via Independent Learning. (Prerequisite: PSY 101.)

PSY 245 3 Credits
Child Development (3+0)
As Demand Warrants
(Same as ECHD 245)
PSY 248 3 Credits
Demographic Experience and Development from Prenatal Through Childhood (3+0)
As Demand Warrants
(Same as SOC 248)
PSY 250 3 Credits
Introductory Statistics for Behavioral Sciences (3+0)
Fall, Spring
(Same as SOC 250)
PSY 257 3 Credits
PSY 259 3 Credits
Child Development (3+0)
Alternatives to Child Development (3+0)
Fall, Spring
(Same as HMSC 257)
Survey of counseling philosophy, approaches, and typcs of counseling systems in use. Topics include approach and system match; psychoanalysis, behavior therapy, and humanistic approaches; counseling ethics and ethical problems. (Prerequisites: PSY 101 and 240 or permission of instructor.)
PSY 265 3 Credits  
Counseling Skills II (3+0)  
A continuation of PSY 161 to further development and use of counseling skills. Topics include counseling strategies and techniques, goal-setting, termination, and methods of self-critique for paraprofessional counselors. Extensive use in class case study, role play and audio and video taping. (Prerequisite: PSY 161 or permission of instructor.)

PSY 267 3 Credits  
Stress and the Family (3+0)  
A study of family in the context of both producing and reacting to stress. Sources of stress inside and outside the family system. Concentration on normal, gradual, and cumulative life stresses during the life cycle of the family as well as extraordinary stressors which occur suddenly and frequently overwhelm the family's ability to cope. (Prerequisite: PSY 161 or permission of instructor.)

PSY 360 3 Credits  
Psychology of Women Across Cultures (3+0)  
(Same as SOC 370)  
Alternat Spring  
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. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1991-92.)

PSY 370 3 Credits  
Drugs and Drug Dependence (3+0)  
(Same as SOC 370)  
Alternat Fall  
A multidisciplinary approach emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological, psychological and sociological aspects of drug abuse, recommended drug education alternatives and plans, and treatment and rehabilitation of acute and chronic drug users. Also available via Independent Learning. (Prerequisite: PSY 101 or SOC 101 or permission of instructor. Next offered: 1992-93.)

PSY 380 3 Credits  
Behavioral Biology in the Arctic (3+0)  
Alternat Fall  
Living systems in Alaska and behavioral characteristics that have to do with stress and isolation. Material includes structural designs related to behavioral research. (Prerequisite: PSY 101. Next offered: 1991-92.)

PSY 381 3 Credits  
Cultural and Social Influences on Learning (3+0)  
Alternate Spring  
Theory and research on the fundamentals of learning. Topics include animal learning, classical conditioning, instrumental learning, discrimination learning, biological constraints on learning, and cross-cultural differences in learning styles. (Prerequisite: PSY 101. Next offered: 1992-93.)

PSY 445 3 Credits  
Community Psychology (3+0)  
(Alternate Spring)  
Foundations of community psychology including community assessment consultations. Community assessment activities explored include selecting research areas, surveys, evaluation of services, and use of results. During the community consultation portion, education, prevention, and service issues are covered. Attention given to rural and small community assessment and change especially as it applies to Alaska. (Prerequisite: PSY 101, SOC 101, HMSN 201.)

PSY 450 4 Credits  
Experimental Psychology (2+4)  
Alternate Spring  
An integrated approach to the study of experimental psychology. Emphasis on research methodologies and techniques. Design, execution, and analysis of individual projects involving both animal and human subjects. (Prerequisites: PSY 101, PSY 250 or STAT 101, and computer science course(s) strongly recommended and/or permission of instructor. Next offered: 1992-93.)

PSY 460 4 Credits  
Physiological Psychology (3+3)  
Alternate Fall  
An integrated multidisciplinary approach to the study of neuroanatomy and neurophysiology emphasizing the basic principles, cortical and subcortical organization, functional mechanisms, and the physical-chemical foundations in physiological bases of behavior with special reference to neuroanatomy, neurochemistry, and electrrophysiological measures employed in the study of behavior and brain activity. Research topics include brain dynamics, the neural bases of learning, the neural substrates of emotion and motivation, states of consciousness, and stress and psychosomatic relationships. (Prerequisites: PSY 101, BIOL 105, 106 or BIOL 111, 112 and/or permission of instructor. Next offered: 1991-92.)

PSY 470 3 Credits  
Sensation and Perception (3+0)  
Alternate Spring  
An integrated psychophysiological inquiry emphasizing principles, functions and organization, and fundamental mechanisms, and the structural complexity extant in the sensory physiology of audition, gustation, kinesthesia, olfaction, proprioception, somesthesis, and vision. Theoretical models and systems of perception with reference to biological, cultural, developmental, hereditary, physiological, psychological, and social effects on sensory perceptions. (Prerequisites: PSY 101, PSY 460, and BIOL 105, 106 or BIOL 111, 112 and/or permission of instructor. Next offered: 1991-92.)

PSY 473 3 Credits  
Social Science Research Methods (3+0)  
Alternate Spring  
(Alternate Spring)  
Techniques of social research: sampling, questionnaire construction, interviewing and data analysis in surveys; field and laboratory experiments, and attitude scaling. (Prerequisite: PSY/SOC 250.)

PSY 510 3 Credits  
Substance Abuse (3+0)  
Fall  
Alcohol: Pharmacology and Behavior (3+0)  
(Alternate Spring)  
(Alternate Spring)  
Human Adaptation to the Circumpolar North (3+0)  
(Alternate Spring)

PSY 615 3 Credits  
Drug Action: Physiology and Behavior (3+0)  
As Demand Warrants

PSY 618 3 Credits  
Community Treatment Alternatives (3+0)  
As Demand Warrants

PSY 620 3 Credits  
Treatment of Drug and Alcohol Dependency (3+0)  
As Demand Warrants

PSY 625 3 Credits  
Prevention of Alcohol and Drug Dependency (3+0)  
As Demand Warrants

PSY 630 3 Credits  
Community Psychology (3+0)  
Spring  
(Alternate Spring)

PSY 631 3 Credits  
Community Psychology: Cross-cultural Applications and the Ethics of Change (3+0)  
Spring  
(Alternate Spring)

PSY 635 3 Credits  
Field-Based Research Methods (3+0)  
Spring  
(Alternate Spring)

PSY 638 3 Credits  
Social Policy and Social Change (3+0)  
(Alternate Fall)

SOCIOI. PSYCOLOGY / 179
PSY 645 3 Credits Alternate Fall
Prevention Theories and Strategies (3+0)
(Same as SOC 645)

PSY 646 3 Credits As Demand Warrants
School Counseling (3+3)
(Same as COUN 646)

PSY 650 3 Credits As Demand Warrants
Cross-Cultural Psychopathology (3+0)

PSY 655 3 Credits Alternate Spring
Healing Implications for Clinical/Community Practice (3+0)

PSY 660 3 Credits Counseling Theories and Applications (3+0)
(Same as COUN 623)

PSY 661 3 Credits Cross-Cultural Counseling (3+0)
(Same as COUN 660)

PSY 662 3 Credits Alternate Spring
Transformational Development and Psychotherapy (3+0)

PSY 663 3 Credits Clinical Methods and Assessment (3+0)

PSY 664 3 Credits Behavior Therapy (3+0)

PSY 65 3 Credits Alternate Spring
Psychoanalytic Theory and Clinical Method (3+0)

PSY 666 3 Credits Family and Network Therapy (3+0)

PSY 667 3 Credits Existential Psychotherapy (3+0)

PSY 668 3 Credits Crisis Intervention (3+0)

PSY 674 3 Credits Spring
Group Counseling (3+0)
(Same as COUN 674)

PSY 677 3 Credits As Demand Warrants
Psychological Assessment - Intelligence (3+0)

PSY 678 3 Credits As Demand Warrants
Psychological Assessment - Personality (3+0)

PSY 688 3 Credits Fall, Spring
Practicum in Community Psychology (3+0)

PSY 690 3-12 credits Fall, Spring
Internship in Community Psychology (0+40)

Religion

RELG 205 3 Credits As Demand Warrants
Introduction to the Bible (3+0)
A study of the Bible as literature of ancient Israel and the early Christian Church.

RELG 211 2 Credits As Demand Warrants
Arctic Native Religion: Shamanism (2+4)
Basic principles and beliefs of Shamanism with emphasis on North American and Arctic Shamanism. Introduction to traditional functions of Shamanism: past and present perceptions of Shamanism.

RELG 221 3 Credits As Demand Warrants
Religions of the World (3+0)
A survey of the development of major religions of the Eastern and Western world including contemporary world religions.

Rural Development

RD 200 3 Credits Fall
Community Development in the North (3+0)
Examines rural community development efforts in Circumpolar countries and the impact of these efforts on Northern communities and indigenous peoples.

RD 255 3 Credits As Demand Warrants
Rural Alaska Land Issues (3+0)
The history and significance of ANCSA, ANILA and other land issues in rural areas of Alaska.

RD 256 3 Credits As Demand Warrants
Advanced topics in Rural Land Management (1.5+Arr)
Additional experience in practical issues in rural land management through directed readings. Advanced examples in use of public land record, record of local land record systems, and an overview of survey techniques. (Prerequisites: RD 255 and ABUS 223.)

RD 265 3 Credits Fall
Perspectives on Subsistence in Alaska (3+0)
Examines the socio-economic, cultural, legal and political dimensions of subsistence lifestyles in Alaska.

RD 280 3 Credits As Demand Warrants
Resource Management Research Techniques (3+0)
Overview of standard methods of field-based scientific research conducted by resource management agencies in rural Alaska including field sampling procedures, research, and interpretation of field research.

RD 315 3 Credits Alternate Spring
Tribal People and Development (3+0)
A study of tribal people and development processes on tribal peoples in third and fourth world societies. Attention to implications of these processes for Alaska Native people. (Prerequisite: Junior standing or permission of instructor.)

RD 325 3 Credits Spring
Community Development Strategies (3+0)
Examines community development/organizational strategies appropriate for a variety of institutional and community situations.

RD 338 3 Credits As Demand Warrants
Education and Economic Development (3+0)
(Same as ED 338)
Examines theory and evidence linking varied forms of education to economic growth and development. A comparative approach explores similarities and differences between rural Alaskan regional development and systematic nation-building efforts in developing countries. (Prerequisite: Permission of instructor.)

RD 350 3 Credits Fall
Community Research and Planning Techniques (3+0)
Basic techniques and concepts associated with long-range community-level research, planning and evaluation, activities related to the needs of Native corporations, rural communities and the rural school districts, including practical experience in grant writing.

RD 375 3 Credits As Demand Warrants
Women and Development (3+0)
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.

RD 400 3 Credits Fall, Spring
Rural Development Internship
Structured experience in an appropriate educational, agency or corporate setting. Approved project required. Enrollment only by prior arrangement with the instructor.

RD 425 3 Credits As Demand Warrants
Cultural Impact Analysis (3+0)
An examination of the potential impacts of development projects on cultural systems and use of impact data to shape the actual project in positive directions. Data gathering and analysis techniques related to impact predictions. Student impact analysis required. (Prerequisite: RD 350 or permission of instructor.)

RD 450 3 Credits Spring
Managing Community Development Programs (3+0)
Examines appropriate management and accountability approaches for small-scale, community-based programs and projects, particularly those found in rural and/or cross-cultural contexts. (Prerequisite: RD 325 or permission of instructor.)

RD 475W 3 Credits Fall, Spring
Rural Development Senior Project
Under faculty supervision, the student completes a major theoretical research and/or applied project which relates the student's applied emphasis area to rural development considerations. (Prerequisite: Senior standing or permission of instructor.)
Russian

For information on studying in the Soviet Union, see Study Abroad.

RUSS 075  3 Credits  As Demand Warrants
RUSS 076  3 Credits  As Demand Warrants

An introductory course for students who wish to acquire the ability to speak Russian. Students first learn to understand simple spoken language, then to speak simple Russian, developing a beginning level of communicative competence in the language. (Prerequisite: RUSS 075 or 076.)

RUSS 101  5 Credits  Fall
RUSS 102  5 Credits  Spring

Elementary Russian I and II (5+0)

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 audio-visual materials.

RUSS 201  4 Credits  Fall
RUSS 202  4 Credits  Spring

Intermediate Russian I and II (4+0)

Continuation of RUSS 102. Increasing emphasis on reading ability and cultural materials. Conducted in Russian. (Prerequisite: RUSS 102 or two years of high school Russian.)

RUSS 301  3 Credits  Fall
RUSS 302  3 Credits  Spring

Advanced Russian (3+0)

Discussion and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in Russian. (Prerequisite: RUSS 202 or instructor permission.)

RUSS 431  3 Credits  Fall
Studies in Russian Culture (3+0)

Study of the cultures of the Russian-speaking world. Conducted in Russian. Students may repeat course for credit if topics vary. (Prerequisites: RUSS 301 or equivalent; junior standing or permission of instructor.)

RUSS 432  3 Credits  Spring
Studies in Literature in Russian (3+0)

Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in Russian. Student may repeat course for credit if topics vary. (Prerequisites: RUSS 302 or equivalent, and at least junior standing, or permission of instructor.)

RUSS 487  3 Credits  Fall
Translation of Russian Texts (3+0)

Expansion of vocabulary and grammatical knowledge, emphasis on understanding precise shades of meaning, stylistic, artistic expression and cultural values in language; literary and non-literary texts. Conducted in Russian. Student may repeat course for credit if topics vary. (Prerequisites: RUSS 302 or equivalent, and at least junior standing, or permission of instructor. Next offered: 1991-92.)

RUSS 488  3 Credits  As Demand Warrants
Individual Study: Senior Project (1+0)

Designed to permit the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Conducted in Russian. (Prerequisite: At least 10 credits in upper division Russian or permission of instructor.)

Science Application

Science application courses are not offered on the Fairbanks campus.

SCIA 100  1 Credit  As Demand Warrants
Introducing Astronomy (1+0)

History of astronomy, the structure of the universe and its parts and the techniques used for studying the universe. Observation of celestial bodies with various optical instruments.

Social Work

SWK 103  3 Credits  Fall, Spring
Social Work in the Human Services (3+0)

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 services, social policy and legislation, services, programs, and career opportunities within rural and urban Alaska, as well as nationally, are discussed.

SWK 225  2 Credits  As Demand Warrants
Case Management (2+0)

(same as HMSV 225)

Basic knowledge and skills to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management considered and discussed. (Prerequisite: PSY 101, SOC 101 or permission of instructor.)

SWK 306  3 Credits  Spring
Social Welfare: Policies and Issues (3+0)

Social policies and how they affect the delivery of social services. Factors influencing development of the current social service system. Analysis of dilemmas which develop in a welfare system attempting to deal with rapid social change. Alternative approaches to the solution of social problems and possible future developments. (Prerequisite: SWK 103.)

SCIA 101  3 Credits  Independent Learning Only
Fundamentals of Petroleum (3+0)

An overall view of the petroleum industry in terms understandable by the lay person as well as the professional. Included are lessons on petroleum geology, prospecting, leasing, drilling, production, pipelines, refining, processing, and marketing. Sponsored by the Alaska Mining and Petroleum Training Service.

SCIA 107  1 Credit  As Demand Warrants
Rock Identification (1+0)

Physical properties of igneous, sedimentary and metamorphic rocks. Slight identification of rocks with emphasis on rocks found on the Seward Peninsula.

SCIA 109  1 Credit  As Demand Warrants
Mineral Identification (1+0)

Physical and field identifiable chemical properties of rocks and minerals. Emphasis on minerals found on the Seward Peninsula.

SCIA 130  1 Credit  As Demand Warrants
Moose Ecology (1+0)

Natural history of moose, the ecological concepts of energy flow, nutrient cycling, food webs and population dynamics. Attention to the Seward Peninsula moose population and factors used in making wildlife management decisions.

SCIA 150  1 Credit  As Demand Warrants
Subarctic Horticulture (0+3)

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.

SCIA 161  1 Credit  As Demand Warrants
Birds of Alaska (1+0)

Biological of birds including behavior, anatomy, physiology, ecology, systematics and field identification. Birds of the Seward Peninsula emphasized.

SCIA 230  2 Credits  As Demand Warrants
Biology and Management of King Crab in Norton Sound (1+3)

Anatomy, physiology and ecology of the King Crab. Topics include scientific methodology, field biologist's duties and problems of fishery management. Students work with Alaska Department of Fish and Game biologists in an ongoing study. Six-student limit in lab; may register for lecture portion only.

SCIA 251  3 Credits  As Demand Warrants
Horticultural Science in a Subarctic Environment (2+4)

Plant anatomy, physiology, genetics, ecology, propagation, insect and disease control, soils, greenhouse construction and care and gardening techniques. Students will develop and conduct a horticultural research project in the Nome area.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Semester</th>
<th>Title</th>
<th>Notes</th>
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<tbody>
<tr>
<td>SWK 320</td>
<td>3</td>
<td>Spring</td>
<td>Rural Social Work</td>
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<td>SWK 360</td>
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<td>Fall</td>
<td>Child Abuse and Neglect</td>
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<td>Human Behavior in the Social Environment</td>
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<td>Individual, Society and Culture</td>
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<td>Introduction to Sociology</td>
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<td>Social Institutions</td>
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<td>Current Woman</td>
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<td>Social Problems</td>
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<td>The Family: A Cross-Cultural Perspective</td>
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<td>Introductory Statistics for Behavioral Sciences</td>
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<td>Rural Sociology</td>
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<td>Demography</td>
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<td>Sociology of Deviant Behavior</td>
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<td>Sociology of Education</td>
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<td>SOC 363</td>
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<td>Fall</td>
<td>Social Stratification</td>
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Spanish

For information on studying in Europe, see Study Abroad.

SPAN 075 3 Credits
SPAN 076 3 Credits

Conversational Spanish I and II (3+0) s
An introductory course for students who wish to acquire the ability to speak Spanish. Students first learn to understand simple spoken language, then to speak simple Spanish developing a beginning level of communicative competence in the language. (Prerequisite: SPAN 075 or 076.)

SPAN 100A 3 Credits
SPAN 100B 3 Credits

Beginning Spanish I and II (3+0) h
An introductory course in the Spanish language and culture with an emphasis on spoken and written language. After completion of SPAN 100A and 100B the student will be able to continue on to SPAN 102.

SPAN 101 5 Credits
SPAN 102 5 Credits

Elementary Spanish I and II (3+0) h
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 1000 words; exploration of the cultural dimension, implicitity through language and explicitly through texts and audio-visual materials. (Prerequisite for SPAN 102: SPAN 101 or SO 101 or the equivalent.)

SPAN 113 3 Credits
Spanish for Tourists (3+0) s
For students with no background in Spanish who wish to learn useful phrases and basic language. Cultural and travel information on Spain and Latin America.

SPAN 201 3 Credits
Fall
SPAN 202 3 Credits
Spring

Intermediate Spanish I and II (3+0) h
Continuation of SPAN 102. Increasing emphasis on reading ability and cultural material. Conducted in Spanish. (Prerequisite: SPAN 102 or equivalent.)

SPAN 301 3 Credits
Fall
SPAN 302 3 Credits
Spring

Advanced Spanish (3+0) h
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in Spanish. (Prerequisite: SPAN 302 or equivalent or instructor permission.)

SPAN 431 3 Credits
Fall

Studies in the Culture of the Spanish Speaking World (3+0) h
Study of the cultures of the Spanish speaking world. Conducted in Spanish. Students may repeat course for credit if topic varies. (Prerequisites: SPAN 302 or equivalent; junior standing or permission of instructor.)

SPAN 432 3 Credits
Spring

Studies in Literature in Spanish (3+0) h
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in Spanish. Student may repeat course for credit if materials vary. (Prerequisites: SPAN 302 or equivalent and at least junior standing or permission of instructor.)

SPAN 467 3 Credits
Fall

Translation of Spanish Texts (3+0) h
Expansion of vocabulary and grammatical knowledge; emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language. and literary and non-literary texts. Student may repeat course for credit if materials vary. Conducted in Spanish. (Prerequisites: SPAN 302 or equivalent and at least junior standing or permission of instructor.)

SPAN 489 3 Credits
As Demand Warrants

Individual Study: Senior Project h
Designed for the student to demonstrate ability with the language and the culture through the 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 fifth week of the semester preceding the semester of graduation. Offered normally in the semester preceding the student's graduation. Conducted in Spanish. (Prerequisite: At least 10 credits in upper division Spanish or permission of instructor.)

Speech Communication

Due to enrollment pressures, it is Department of Speech Communication policy to drop from the class roll students who fail to attend the first two meetings of a basic course (SPC 131X and 141X) even if they have preregistered.

SPC 131X 3 Credits
Fall, Spring

Fundamentals of Oral Communication: Group Context (3+0)
The communication process, focusing on listening, perception, verbal and non-verbal communication, and organizing material. Emphasizes increased understanding of and effective performance in small group communication situations.

SPC 141X 3 Credits
Fall, Spring

Fundamentals of Oral Communication: Public Context (3+0)
The communication process, focusing on listening, perception, verbal and non-verbal communication, and organizing material. Emphasizes increased understanding of and effective performance in public speaking situations.

SPC 222 3 Credits
Fall, Spring

Fundamentals of Interpersonal Communication (3+0)
The communication process, focusing on listening, perception, verbal and non-verbal communication, and organizing material. Emphasizes understanding of and effective performance in two-person communication situations. May be used to fulfill the oral communication degree requirement under all catalogs through 1990-91.
SPC 225 3 Credits Alternate Years
Listening and Interviewing (3+0)
Examination and application of effective listening skills and interview- ing skills used in a variety of situations, considering the roles of both listener and speaker. (Prerequisite: Any 100 level speech communication course or permission of instructor. Next offered: Fall 1991.)

SPC 231 3 Credits Alternate Years
Business and Professional Communication (3+0)
Focuses on superior/subordinate communication, interviewing, conference and meeting techniques, and presentation skills. Designed to help business, professional, and communication students enhance their oral communication skills. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: 1992-93.)

SPC 251 3 Credits Alternate Years
Argumentation and Debate (3+0)
Principles and practices in contemporary debate. Review and analysis of relevant argumentation principles as applied to a debate situation. Practice in preparation, defense, and refutation of cases developed in reference to a given debate resolution. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: 1992-93.)

SPC 261 3 Credits Alternate Years
Oral Interpretation (3+0)
Interpretive reading of a variety of literary forms. Focuses on development of intellectual and emotional responsiveness to literature for increased understanding and appreciation, and expressive skills of voice and body for effective oral interpretation. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: 1991-92.)

SPC 280 3 Credits Alternate Years
Communication and Language (3+0)
Language and meaning in human communication. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: 1991-92.)

SPC 281 3 Credits Alternate Years
Nonverbal Communication (3+0)
Non-lexical behavior in human communication, including consideration of space, physical interactions, and different cultural backgrounds. Emphasis on problems in intercultural communication in Alaska. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: 1992-93.)

SPC 300 3 Credits Alternate Years
Intercultural Communication (3+0)
The scope and nature of communication networks within and between organization, concentrating on message flow, interaction patterns, and environmental structures. Emphasis on problems in intercultural communication in Alaska. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: 1992-93.)

SPC 301O 3 Credits Alternate Years
Advanced Group Communication (3+0)
Current research and theory in intergroup and intragroup relations. Topics include the study of leadership, power, group structure, participation, and conflict. (Prerequisite: Any 100 level speech communication course or permission of instructor. Next offered: 1992-93.)

SPC 335Q 3 Credits Alternate Years
Organizational Communication (3+0)
The scope and nature of communication networks within and between organization, concentrating on message flow, interaction patterns, and environmental structures. Emphasis on problems in intercultural communication in Alaska. (Prerequisite: Completion of one lower division speech communication course or permission of instructor. Next offered: 1992-93.)

SPC 342O 3 Credits Alternate Years
Advanced Public Speaking (3+0)
Advanced opportunities to study and critique methods of speech preparation and delivery. Performance and criticism of original speeches to develop understanding of sophisticated techniques of public discourse. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: 1991-92.)

SPC 351 3 Credits Alternate Years
Communication and Women (3+0)
Communication of women in Western culture both as senders and receivers, with emphasis on the three main areas of the discipline: public address, interpersonal and organizational. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: Fall 1991.)

SPC 352 3 Credits Alternate Years
Family Communication (3+0)
Function of communication in marriage and the family, sequences and patterns of family communication, family life as a continual process of coping with dialectical tensions, and the complexity of family life in Western societies. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: Fall 1991.)

SPC 401 3 Credits Alternate Years
Communication Research Methods (3+0)
Empirical and rhetorical-critical research methodologies employed in the conduct of research on communication phenomena. (Prerequisite: Two upper level courses in speech communication or permission of instructor. Next offered: 1992-93.)

SPC 422 3 Credits Alternate Years
Interpersonal Communication (3+0)
Approaches to interpersonal communication. Emphasis on dialogic/ transactional communication within two-person situations, in-depth exploration of theoretical materials related to relational interactions. (Prerequisite: SPC 222 or permission of instructor. Next offered: Fall 1992.)

SPC 425 3 Credits Alternate Years
Communication Theory (3+0)
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. (Prerequisite: Any 300 level speech communication course or permission of the instructor. Next offered: 1991-92.)

SPC 441 3 Credits Alternate Years
Persuasion (3+0)
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. (Prerequisite: Any 300 level speech communication course or permission of the instructor. Next offered: 1991-92.)

SPC 4430W 3 Credits Alternate Years
Rhetorical Theory (3+0)
Critical analysis of Plato, Aristotle, and Sophists on rhetoric, tracing the development of rhetorical theory from inception in 500 B.C. to current practices. Significant contributions by important scholars of rhetoric studied. (Prerequisite: Any 300 level oral communication course or permission of the instructor. Next offered: 1992-93.)

SPC 475 3 Credits Alternate Years
Speech Communication in Education and Training (3+0)
Issues pertaining to research and development of instructional units for educational and professional courses. Issues include student needs analysis, syllabi development, behavioral objectives, unit packages, competency, models, and program integration. (Prerequisite: Any 300 level speech communication course or permission of instructor. Next offered: 1992-93.)

SPC 482 3 Credits Alternate Years
Seminar in Speech Communication (3+0)
Current trends and theory in key areas of speech communication are examined. Students concentrate research in their speciality area while examining selected topics in all the areas. (Prerequisite: Any 300 level Speech Communication course or permission of instructor. Next offered: 1991-92.)

Statistics

STAT 200 3 Credits Alternate Years
Elementary Probability and Statistics (3+0)
Fall, Spring
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 107, 161, 181 or consent of instructor)

STAT 300 3 Credits Alternate Years
Statistics (3+0)
A calculus-based course emphasizing applications. Topics include probability, point and interval estimation 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 200 and 300 to meet the requirement of a year's sequence course in statistics. (Prerequisites: MATH 200, 262, or 272.)
STAT 301  2 Credits  Spring
Statistical Computing Packages (1+3)
A study of the use of IMSL, SPSS, MINTAB, IML, and other miscellaneous statistical computing packages. Comparison of output for similar analyses. (Prerequisite: STAT 200 or 300.)

STAT 401  4 Credits  Fairbanks, Fall
Regression and Analysis of Variance (3+3)
A thorough study of multiple regression including multiple and partial correlation, the extra sum of squares method, indicator variables, and model selection techniques. Analysis of variance and regression covariance for multifactor studies in completely random, randomized complete block, nested designs, multiple comparison and orthogonal contrasts. (Prerequisite: STAT 200 [STAT 373-J] or STAT 300.)

STAT 402  3 Credits  Fall, Spring
Scientific Sampling (2+3)
Sampling methods, including simple random, stratified and systematic, estimation procedures, including ratio and regression methods; special area and point sampling procedures; optimum allocation. (Prerequisite: STAT 200 or 300.)

STAT 461  3 Credits  Alternate Spring
Applied Multivariate Statistics (3+0)
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. (Prerequisite: STAT 401 or consent of instructor. Next offered: 1991-92.)

STAT 602  3 Credits  Fairbanks and Juneau
Experimental Design (3+0)
As Demand Warrants

STAT 621  3 Credits  Fairbanks, Alternate Fall
Distribution-Free Statistics (3+0)
Juneau, As Demand Warrants

STAT 640  3 Credits  Fairbanks and Juneau
Exploratory Data Analysis (2+2)
As Demand Warrants

STAT 661  3 Credits  Fairbanks and Juneau
Sampling Theory (3+0)
As Demand Warrants

STAT 680  3 Credits  Alternate Fall
Data Analysis in Biology (3+3)
(Same as BIOL 660)

Note: The following courses are statistical in orientation. A description and listing of prerequisites for undergraduate courses may be found in the appropriate departmental course listings.

ANTH 421 — Analytical Techniques
BA 360 — Operations Management
BA 606 — Quantitative Analysis
BA 664 — Quantitative Methods for Management
GEOS 430 — Statistical and Data Analysis in Geology
ECON 226 — Introduction to Statistics for Economics and Business
ECON 227 — Statistical Methods
ECON 626 — Econometrics
ESM 621 — Operations Research
MATH 371 — Probability
MATH 408 — Mathematical Statistics
PSY 250 — Introduction to Statistics for Behavioral Sciences
FISH 630 — Quantitative Fisheries Science

Theatre

THR 101, 201  1-3 Credits  Fall, Spring
Theatre Practicum (0+Var.) h
Participation in drama workshop or lab production as performer or technical staff member. Graded pass/fail only. (Credit in this course may not be applied to a major program in theatre.)

THR 301, 401  1-3 Credits  Fall, Spring
Fundamentals of Acting (3+0) h
Basic stage acting techniques for persons with little or no prior acting experience. Emphasis on physical, emotional and imaginative awareness. Scene work fundamentals introduced.

THR 121  3 Credits  Fall, Spring
Introduction to Tuna Theatre (3+0) h
(Fall as ANS 161)
Development and performance of original and traditional theatrical works derived from various Alaska Native cultural heritages and experiences. This course is a prerequisite for ANS/THR 361, Advanced Tuna Theatre and for membership in the Tuna Theatre touring company.

THR 200X  3 Credits  Fall, Spring
Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h
(Alas. ART 200X and MUS 200X)
Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends.

THR 211  3 Credits  Fall, Spring
A guide to the richer appreciation of theatre through a study of the main periods, styles and playwrights from the classical period to the present.

THR 221  3 Credits  Spring
Intermediate Acting (1+4) h
Continued development of physical, emotional and imaginative awareness. Text and character analysis, scene and monolog study and presentation. Introduction to improvisation. (Prerequisite: THR 211 or permission of the instructor.)

THR 225  3 Credits  Alternate Spring
Movement for the Actor (1+4) h
Principles of stage movement, body awareness, and control as explored through analysis, exercise, study of historical dance and scene work. (Next offered: 1991-92.)

THR 231  3 Credits  Fall
Basic Stagecraft (2+2) h
Materials of scene construction and painting and their use.

THR 321  3 Credits  Alternate Fall
Advanced Acting (1+4) h
Refinement of physical, emotional and imaginative awareness. Introducing a variety of character building methods. Study and performance of scenes and short plays. Introduction to audition techniques. (Prerequisite: THR 221, or permission of the instructor. Next offered: 1992-93.)

THR 325  3 Credits  Alternate Fall
Theatre Speech (2+2) h
Voice techniques for actors. Standard stage diction and foreign dialects. (Prerequisite: THR 221 or permission of instructor. Next offered: 1992-93.)

THR 331  3 Credits  Alternate Spring
Fundamentals of Stage Direction (1+4) h
Introduction to the history, theory, basic concepts of stage direction, interpretative script analysis, creative visualization, conceptualization, use of space, working with actors and designers. Direction of short scenes and plays. (Prerequisite: THR 221, or permission of the instructor. Next Offered: 1992-93.)

THR 341  3 Credits  Spring
Intermediate Stagecraft (2+2) h
An examination of the less common scenic materials with methods and techniques for their use. Students will spend approximately $40 for materials. (Prerequisite: THR 241 or permission of instructor.)

THR 343  3 Credits  Alternate Fall
Scene Design (3+0) h
Principles and techniques of theatrical scenic design. Includes designing projects directed at solving particular scenic problems or in a specific scenic style with specific physical limitations. Materials fee: approximately $40. (Prerequisite: THR 241 or permission of the instructor. Next offered: 1992-93.)

THR 347  3 Credits  Alternate Spring
Lighting Design (3+0) h
Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained from the experiments. Materials fee: approximately $40. (Prerequisite: THR 343 or permission of the instructor. May be taken concurrently with THR 343. Next offered: 1992-93.)
Trades and Technology

Trades and technology courses are offered only at UAF sites outside of Fairbanks.

**TTCH 101** 2 Credits  
Machine Woodworking (1+4)  
Introduction to woodworking power machines (circular saw, jointer, radial arm saw), joints, fasteners, and different stains and finishes used on wood.  
As Demand Warrants

**TTCH 105** 1 Credit  
Basic Electrical Wiring (1+0)  
Familiarizes the student with fundamental skills and career opportunities in electrical wiring.  
As Demand Warrants

**TTCH 113** 3 Credits  
Basic Plumbing (3+0)  
Introduction to methods and materials used in household plumbing. Topics include pipe fittings and valves, pipe hangers and brackets.  
As Demand Warrants

**TTCH 117A** 1 Credit  
Four-Cycle Engine Repair (1+0)  
Covers four-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.  
As Demand Warrants

**TTCH 120** 4 Credits  
Refrigeration and Air Conditioning (4+0)  
Introduces fundamentals of refrigeration and air conditioning theory for preparation of further study. Topics include compressors, condensers, evaporators, metering devices and related components. Assumes no previous knowledge on part of student.  
As Demand Warrants

**TTCH 130** 3 Credits  
Blueprint and Schematic Reading (3+0)  
Basic blueprint and schematic reading skills used by building maintenance personnel. Introduction to machine drawings, building drawings, hydraulic and pneumatic drawings, electrical schematic symbols, air conditioning and refrigeration drawings, welding and joining symbols.  
As Demand Warrants

**TTCH 131** 3 Credits  
Maintenance Mathematics (3+0)  
Practical application of mathematics for industry, 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.  
As Demand Warrants

**TTCH 132** 3 Credits  
Building Maintenance Materials (3+0)  
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.  
As Demand Warrants

**TTCH 133** 3 Credits  
Basic Hand and Power Tools (3+0)  
Uses, care and maintenance of hand and power tools. Familiarity and skill development with these tools through construction of shop projects.  
As Demand Warrants

**TTCH 134** 1 Credit  
Maintenance Safety (1+0)  
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.  
As Demand Warrants

**TTCH 135** 1 Credit  
Basic Maintenance Troubleshooting (1+0)  
Systematic approaches to troubleshooting, scheduled and unscheduled maintenance of plant equipment and systems.  
As Demand Warrants
WMT 110 1-3 Credits
Oxy-Acetylene Welding (OAW)
A maximum of three credits awarded for successful completion of any of the four sections: 110A-Certif OAW (1G); 110B-Certif OAW (2G); 110C-Certif OAW (3G); 110D-Certif OAW (4G). Presented in competency-based manner.

WMT 115 1 Credit
Bronze Gas Welding (OAW-Bronze) (1G)
Credit is granted for successful completion of the certification test. WMT 115A-Certif OAW (1G). Presented in competency-based manner.

WMT 130 1-3 Credits
Shielded Metal Arc Welding (SMAW)
All positions emphasized for multiple pass fillet welds. A maximum of three credits are awarded for successful completion of any of the four sections: 130A-Certif SMAW (1F); 130B-Certif SMAW (2F); 130C-Certif SMAW (3F); 130D-Certif SMAW (4F). Presented in competency-based manner.

WMT 150 1-3 Credits
Gas Tungsten Arc Welding (GTAW)
Use of tungsten and argon gas for welding aluminum and stainless steel gas welding (formerly called Helitarc). A maximum of three credits are awarded for successful completion of any of the four sections: 150A-Certif GTAW Alum (1F); 150B-Certif GTAW Alum (2F); 150C-Certif GTAW Alum (3F); 150D-Certif GTAW Alum (4F). Presented in competency-based manner.

WMT 241 3 Credits
Fall
Gas Tungsten Arc and Gas Metal Arc Welding (1.5+5.5)
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. Material fee: $250.00.

WMT 261 3 Credits
As Demand Warrants
Aviation Welding (2+2)
Tungsten inert gas (TIG) and arc welding are used to weld Moly steel aircraft structural parts. Basic aircraft joints and sheet metal joints are welded. Recommended as a review for licensed Aircraft and Power mechanics as well as those contemplating an A & P license.

Wildlife

WLF 101 1 Credit
Spring
Survey of Wildlife Science (1+0)
Major aspects of wildlife biology and management, research of local wildlife biologists and programs of management agencies. (Prerequisites: Completion of a course emphasizing the biology of non-human organisms.)

WLF 201 3 Credits
Spring
Wildlife Management Principles (2+3)
Application of ecological principles to the study and management of wildlife populations and habitats. Laboratory work in information retrieval from biological and resource management literature. (Prerequisites: BIOL 271, familiarity with computer usage desirable.)

WLF 303 3 Credits
Fall
Wildlife Management Techniques (2+3)
Study of procedures used by wildlife biologists and managers to collect, analyze, and disseminate information. Topics include using wildlife literature and scientific writing: behavioral sampling; nomenclature, identification, and sexing of species; census methods; animal evaluation and manipulation; biometry; range, food habits and modeling; and necropsy procedures, animal condition, and animal diseases. Term paper required. Laboratory fee: $20.00. (Prerequisites: WLF 201 or equivalent, BIOL 271.)

WLF 304 1-3 Credits
Fall, Spring
Wildlife Internships
Practical experience in wildlife management in public or private agency, as approved by faculty member and supervisor. Projects are approved by faculty members and supervised by professional agency staff. May not be substituted for courses required for major. (Prerequisite: Permission of instructor.)

WLF 305 3 Credits
Alternate Spring
Wildlife Diseases (2+3)
Basic concepts of parasitic, infectious, environmental, and nutritional diseases. Specific study of Alaskan wildlife diseases. Basic necropsy techniques and chemical immobilization. Laboratory fee: $200.00. (Prerequisites: BIOL 105, 106 or equivalent and permission of instructor. Recommended: BIOL 205 or 222 and BIOL 210. Next offered: 1991-92.)

WLF 380 3 Credits
Fall
Nutrition and Physiological Ecology of Wildlife (3+4)
Concepts and techniques used by wildlife managers 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 levels and habitat management. (Prerequisites: BIOL 210, 271, WLF 201.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Offering</th>
<th>Title</th>
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<tbody>
<tr>
<td>WLF 410</td>
<td>3</td>
<td>Spring</td>
<td>Wildlife Populations and Their Management (2+3) The 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. Laboratory fee: $20.00. (Prerequisites: BIOL 271, STAT 301, WLF 303.)</td>
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<tr>
<td>WLF 417</td>
<td>2</td>
<td>Alternate Spring</td>
<td>Wildlife Management: Forest and Tundra (2+0) Description of tundra and forest ecosystems including major groups of birds and mammals. Biological, economic, and political factors important in the conservation of major species. (Prerequisites: WLF 201 or permission of the instructor. BIOL 425 and 426 recommended. Next offered: 1991-92.)</td>
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<td>WLF 419</td>
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<td>Alternate Fall</td>
<td>Waterfowl and Wetlands Ecology and Management (3+3) Ecology of waterfowl and associated wetland habitats. Management of populations, including harvest and manipulation of habitats. Distribution, abundance, taxonomy and identification of North American waterfowl. Laboratory fee: $20.00. (Prerequisite: BIOL 271, 426, and WLF 201 or permission of instructor. Next offered: 1991-92.)</td>
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</table>

Jim Teich constructs a clay mixing bowl in an advanced ceramics class.
Register

UA Board of Regents
Robert P. Williams (1985-1993) President
P.O. Box 3535, Kenai, AK 99611
Morris Thompson (1989-1993) Vice President
Dayton Ltd., 201 First Avenue, Fairbanks, AK 99701
Susan A. Stitham (1987-1995) Secretary
P.O. Box 80913, Fairbanks, AK 99708
c/o C.E.S., Inc. P.O. Box 12, Prudhoe Bay, AK 99745
Virginia W. Breeze (1989-1997) P.E.
c/o Corporate Communication Strategies, 101 East 9th Avenue, Suite 12B, Anchorage, AK 99501
Eric Forrer (1989-1997) P.O. Box 34383, Juneau, AK 99803
Sharon D. Gagnon (1991-1999) 7621 Roundtree Drive, Anchorage, AK 99516
Joseph R. Henri (1991-1999) 3921 Near Point Drive, Anchorage, AK 99507
Michael P. Kelly (1991-1999) c/o Golden Valley Electric Association, P.O. Box 71249, Fairbanks, AK 99707
Mary F. Reeve (1990-1991) c/o UAA Native Student Center, 3211 Providence Drive, Building K, Room 101, Anchorage, AK 99508
Lew M. Williams Jr. (1991-1999) 725 Grant Street, Ketchikan, AK 99901

Emeriti
Belon, Albert E., Professor of Physics, Emeritus. University of Alaska '52, B.S.; University of California, Los Angeles '54, M.A.; University of Alaska '64, D. Sc. (Hon.) (1956-1983)
Benson, Carl S., Professor of Geophysics and Geology, Emeritus. University of Alaska '50, B.A.; '56, M.S.; California Institute of Technology '60, Ph.D. (1960-1987)
Biesiot, Peter G., Professor of Business Administration, Emeritus. University of Washington '42, B.A.; University of Nebraska '51, M.S.; Cornell University '56, M.B.A.; University of Southern California '66, D.B.A. (1960-1990)
Carlson, Axel K., Professor of Extension, Emeritus. Michigan State University '33, B.S.; Pennsylvania State University '66, M.S. (1965-1985)
Cashen, William K., Professor of Mathematics and Marshal of the University, Emeritus. University of Alaska '37, B.S.; University of Washington '48, M.A. (1942-1974) Deceased

Davis, Charles W., Professor of Music, Emeritus. State University of Iowa '37, B.A.; '40, M.A. (1938-1979)
Debey, Charles Sterling, Professor of Physics, Emeritus. Reed College '58, B.A.; University of Alaska '61, M.S.; '65, Ph.D. (1958-1988)
Hamann, John Jr., Vincent S., Dean of the School of Engineering, Emeritus and Professor of Mechanical Engineering, Emeritus. Massachusetts Institute of Technology '47, B.S.; University of Michigan '50 M.S.E. (A.F); '56, Ph.D. (A.F) (1980-1991)
Harbo, Samuel J., Professor of Wildlife Management and Biometrics, Emeritus. University of Nebraska '51, B.S.; University of Alaska '58, M.S.; North Carolina State University, Raleigh '72, Ph.D. (1964-1985)
Hood, Donald W., Professor of Marine Science, Emeritus. Pennsylvania State University '40, B.S.; Oklahoma State University '42, M.S.; Texas &AM University '50, Ph.D. (1963-1976)
Hunsucker, Robert, Professor of Electrical Engineering, Emeritus and Professor of Physics, Emeritus. Oregon State University '54, B.S.; '58, M.S.; University of Colorado '69, Ph.D. (1971-1987)
Irving, Laurence, Professor of Zoology, Emeritus. Howard College '16, A.B.; '39, D.Sc. (Hon.) Harvard University '17, A.M.; Stanford University '24.
Faculty and Staff

The date following each name designates the time of original appointment to the University faculty or staff. (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
ATHREC. Athletics and Recreation
CSSR. Conference and Institutes
CH. Chukchi Campus
CLA. College of Liberal Arts
CMS. College of Marine Sciences
CRA. College of Rural Alaska
CES. Cooperative Extension Service
FRTC. Fishery Industrial Technology Center
GI. Geophysical Institute
IAB. Institute of Arctic Biology
IMS. Institute of Marine Sciences
INE. Institute of Northern Engineering
ICFOS. Juneau Center for Fisheries and Ocean Sciences
KUC. Kuskokwim Campus
LIB. Elmer Rasmuson Library
MAP. Marine Advisory Program
NWC. Northwest Campus
PCIS. Planning, Computing & Information Systems
RCTR. Rural Centers
SALRM. School of Agriculture and Land Resources Management
SCCE. School of Career and Continuing Education
SE. School of Education
SFS. School of Fisheries and Ocean Sciences
SC. Alaska Sea Grant College Program
SME. School of Mineral Engineering
SOM. School of Management
STUFA. Student Affairs
UAM. University of Alaska Museum
VCA. Vice Chancellor for Administration
VCAA. Vice Chancellor for Academic Affairs
VCR. Vice Chancellor for Research
Abrahams, Stephen — 1976 - Associate Professor of Library Science (1973). Lib, Bowing Green State University '78, B.A.; University of Alaska '73, B.A.; University of Alaska Fairbanks '70, B.A.
Adams, Dennis — 1990 - Professor of Education (1990). CRA, California State University '83, B.A.; University of Southern California '68, B.A.; University of Wisconsin '73, Ph.D.
Adams, Gail — 1990 - Assistant Student Activities Coordinator (1990). STUFAU, University of Alaska Fairbanks '90, B.A.
Afroz, Adhish — 1990 - Visiting Associate Professor (1990). SME, Wigan Mining College '68, Higher National Diploma; University of Wisconsin '70, M.S.; Professor of Geophysics and Director (1986) and Professor of Geophysics (1988) and University of Tokhao '53, B.M.A.; 57, M.S.; University of Alaska '61, Ph.D.
Albrecht, C. Earl — 1979 - Affiliate Professor of Medical Science (1979). CNS, Moravian College, Pennsylvania '26, B.A.; Moravian Theological Seminary '28, B.D.; Jefferson Medical College '52, M.D.
Alexander, Barbara — 1977 - Associate Professor of Humanities, (1985). CAL. University of Zurich '75, Ph.D.
Alexander, Vera — 1962 - Dean, School of Fisheries and Ocean Sciences (1999); Director, Institute of Marine Sciences (1979); and Professor of Marine Sciences (1976). SFS/IMS, University of Wisconsin '55, B.A.; '62, M.S.; University of Alaska '65, Ph.D.
Alexig, Oscar — 1983 - Adjunct Faculty/Research Associate, (1989). KUC/ CRA, University of Alaska Fairbanks '75, Ph.D.
Allen, James — 1990 - Assistant Professor of Psychology (1990). CRA, University of Wisconsin-Madison '72, B.A.; University of Montana '70, M.A.; '90, Ph.D.
Anderl, Robert — 1990 - Associate Professor of Library Science (1990). Lib, Syracuse University '82, B.S.; '85, M.S.L.
Anderson, Candice M. — 1971 - Coordinator (1986). VCA, Western Washington State University '70, B.A.
Andres, Roy — 1990 - Visiting Instructor of Speech Communication (1990). CAL, Bridgewater College '73, B.A.; University of Virginia School of Law '77, J.D.; University of Montana '88, M.A.
Andresen, Patricia A. — 1967 - Director, Honors Program (1990). CRA, University of Illinois '55, B.S.; University of Missouri '58, M.A.; University of California at Santa Barbara '76, Ph.D.
Andrews, Susan B. — 1988 - Assistant Professor of General Studies and Adjunct Professor of Journalism and Broadcasting (1989). CCS/CRA, Smith College '91, B.A.; University of Oregon '83, M.A.
Armbruster, W. Scott — 1980 - Assistant Professor of Botany (1987). CNS, IAB, University of California, Santa Barbara '72, B.A.; University of California, Davis '77, M.S.; '81, Ph.D.
Arps, Peggy J. — 1989 - Assistant Professor of Biochemistry (1989). CNS, Cornell University '89, B.A.; Johns Hopkins University '83, M.S., Ph.D.
Arundale, Robert — 1979 - Associate Professor of Speech Communication (1983). CRA. Rineskeller Polytechnic Institute '63, B.S.; '64, M.S.; Michigan State University '71, Ph.D.
Arundale, Wendy H. — 1979 - Senior Research Associate (1979). IAB, Brown University '69, A.B.; Michigan State University '72, M.A.; '76, Ph.D.
Arvey, Martha M. — 1988 - Visiting Assistant Professor of Library Science (1988). Lib, Scripps College '83, B.A.; University of California, Los Angeles '84, M.S.
Aspnes, John D. — 1978 - Professor of Electrical Engineering (1981), and Head, Department of Electrical Engineering (1983). SOE, University of Wisconsin '69, M.S.; Montana State University '76, Ph.D.; P.E.
Bader, Mark O. — 1982 - Executive Producer, KUAC-TV and Affiliate Assistant Professor of Broadcasting (1990). CRA, University of Alaska Fairbanks '73, B.S.; Cambridge University '90, M.S.; '93 Ph.D.
Bailey, Regina L. — 1990 - Coordinator (1990). VCA, SU.C Genesos '73, B.S.; '72, Troy State University '81, M.S.
Baker, Elisha R. — 1989 - Associate Professor of Engineering and Science Management (1990). SOE, Clemson University '79, B.S.; '72, M.S.; '75, Ph.D.
Baker, Grant C. — 1988 - Assistant Professor of Mechanical Engineering (1990). SOE, University of Washington, B.S.; University of Alaska Fairbanks, M.S.; Ph.D.
Baker, Jill H. — 1988 - Assistant Professor of Social Work (1988). CRA, University of Texas '68, B.A.; University of Hawaii '81, M.S.W.
Bandopadhyay, Sukumar — 1982 - Associate Professor of Mining Engineering (1987). SME, Banaras Hindu University, India '83, B .S.E.; '75, M.Tech.; Pennsylvania State University '79, M.S.; '81, Ph.D.
Barber, William E. — 1976 - Associate Professor of Fisheries (1986). SOFS, Arizona State University '65, B.A.; '68, M.S.; Michigan State University '70, Ph.D.
Barnes, Brian M. — 1986 - Associate Professor of Zoology (1991). IAB, CNS, University of California, Riverside '77, B.S.; University of Washington '83, Ph.D.
Kirt, Carla A. — 1981 — Associate Professor of Agricultural Education (1981). S.A. (Agricultural Education) University of Missouri-Columbia 78, B.S.; 77, M.S.; University of Missouri-Columbia '81, Ph.D.


Kline, Bridget G. — 1987 — Student Services Coordinator (1987). KUC/CRA. College of Great Falls '70, B.S.

Knavel, Brenda S. — 1979 — Assistant Professor of Library Science (1984). LIB. Shippensburg State College 77, B.S.; Western Michigan University '78, M.S.L.

Knight, Charles W. — 1978 — Assistant Professor of Agronomy (1978). SALRM. Kansas State University '70, B.S.; '71, M.S.; University of Alaska Fairbanks 80, Ph.D.


Knoke, Peter J. — 1989 — Associate Professor of Computer Science (1988), CLA. Dartmouth College 35, B.A.; M.S.E.E; Syracuse University '68, Ph.D.; P.E.


Koester, Rebecca — 1975 — Admissions Manager (1980). STUAFF. Marylhurst College '70, B.A.; University of Alaska Fairbanks '75, A.A.

Koo, John H. — 1969 — Professor of Linguistics, Japanese and Korean (1982). CLA. Tongkook University (Korea) '56, B.A.; '58, M.A.; University of Texas '63, M.A.; Indiana University '70, Ph.D.

Kouski, Parvaz A — 1987 — Associate Professor of Civil Engineering (1991). SOE. University of Arizona '68, B.S.; University of Wisconsin '74, Ph.D.

Kowalik, Zygmunt — 1981 — Professor of Marine Science (1989). SFOS/IMS. Moscow University '61, M.S.; Institute of Water Engineering, Polish Academy of Sciences, Gdansk 65, Ph.D.


Kramer, Donald E. — Director, Marine Advisory Program, Professor of Fisheries (1984). Seafood Technology Specialist (1980). SFOS/MAP. Ohio State University '60, B.A. University of California, Davis '62, M.A.; 67, Ph.D.

Krauss, Michael E. — 1990 — Director, Alaska Native Language Center; Head, Alaska Native Language Program; Professor of Linguistics (1968). CLA. University of Chicago '53, B.A.; Western Reserve University '54, B.A.; Columbus University '55, M.A.; University of Paris '56, Certificate d'Études Supérieures, Harvard University '59, Ph.D. Baccalauréat Philosophie Islandica, Haskold Islands, 60.


Krieg, Kenneth — 1981 — Associate Professor of Animal Science Extension (1968). CES. University of Missouri '64, B.S.; '83, M.S.


Kuykendall, Jo — 1984 — Visiting Assistant Professor of Early Childhood (1998). SCCE. Oregon State University '64, B.S.; University of Southern California '86, Ed.D.

Kwack, Patricia — 1979 — Associate Professor of Cross-Cultural Communications and Alaska Native Studies (1987) and Program Head, Cross-Cultural Communications (1990). CLA. University of Florida, Gainesville '64, B.A.; '70, M.A.; '82, Ph.D.


Lamb, Lonny — 1965 — Superintendent of Custodial Services, VCA.

Lambert, John P. — 1982 — Associate Professor of Mathematics (1987). CLA. University of Cincinnati '75, B.S.; University of New Mexico '86, M.A.; Claremont Graduate School '92, Ph.D.

Lamie, Philip — 1987 — Assistant Professor of Art (1987). CLA. Herron School of Art '84, B.A.; Ohio State University '86, M.F.A.


Lando, Clifton A. — 1969 — Associate Professor of Mathematics (1973), and Associate, 1968. CLA. Lehig University '62, B.A.; Rutgers University '64, M.S.; '69, Ph.D.

LaPerriere, Jacqueline D. — 1972 — Associate Professor of Fisheries and Assistant Leader, Alaska Cooperative Fishery Research Unit (1985). IAB. Associate Professor of Water Resources (1985). CNS, IAB. University of Massachusetts '64, B.S.; Iowa State University '71, B.S.; '91, Ph.D.
Paul III. Augustus J. — 1971 — Associate Professor of Marine Science (1989), SFS/IMS, University of Massachusetts, Amherst ’69, B.A.; University of Alaska ’67, M.S.; University of Alaska ’73, Ph.D.

Paust, Brian C. — 1979 — Associate Professor of Fisheries (1988), Marine Extension Agent (1979), SFS/IMS, University of Washington ’76; University of Alaska ’70, M.S.

Pearson, Roger W. — 1976 — Professor of Geography (1989), Department of Geography (1989), SFS/IMS, University of Illinois ’63, B.A.; University of Illinois ’65, M.S.; ’70, Ph.D.

Pelletier, Vincent — 1985 — Assistant Professor of French and Spanish (1985), SFS/IMS, Assumption College ’68, B.A.; Institut Catholique de Paris ’79, Diplome d’Etudes Francaises; Assumption College ’71, M.A.T.; University of Wisconsin-Madison ’79, Ph.D.

Pender, Dorothy — 1989 — Assistant Professor of Electrical Engineering (1991), SOE, University of Colorado ’85, B.A.; Stanford University ’83, M.S.; ’91, Ph.D.

Pender, John — 1989 — Assistant Professor of Physics (1989), SFS/IMS, University of Alaska ’90, B.Eng.

Pennington, Henry M. — 1975 — Assistant Professor of Fisheries (1981), Marine Extension Agent (1975), SFS/IMS, Humboldt State University ’73, B.S.; ’85, M.S.


Pessl, Garnet — 1987 — Affiliate Assistant Professor of Geography (1987), CNS, California Institute of Technology ’60, B.S.; ’60, M.S.


Peter, Donald — 1983 — Director, Alaska Native Human Resource Development Program (1981), CRA.

Petersen, John K. — 1985 — Laboratory Instructor of Physics (1985), CNS, Bemidji State University ’82, B.S.; University of Alaska ’83, M.S.


Pfisterer, William R. — 1980 — Teacher Education Office Coordinator, Instructor of Education (1982), CRA, University of Wisconsin ’76, B.A.; University of Alaska ’80, M.A.

Phillip, Betty Anne P. — 1965 — Associate Professor of Chemistry (1963), CNS, Agilex College ’72, B.A.; Yale University ’64, M.S. ’69, Ph.D.

Phillip, Kenelm W. — 1965 — Research Associate in Taxonomy (1975), IAB, Yale University ’53, B.S.; ’58, M.S.; ’63, Ph.D.

Phillips, Gary J. — 1990 — Associate Professor of Developmental Education (1990), SCCCE, University of Northern Colorado ’70, B.A.; Southern Illinois University at Carbondale ’72, M.A.; ’80, Ph.D.


Piacenza, Robert J. — 1977 — Professor of Mathematics (1988), CNS, Athens State College ’72, B.A.; University of Maine ’75, M.S.; ’76, Ph.D.

Pierce, Richard A. — 1988 — Professor of History (1988), CNS, University of California, Berkeley ’40, B.A.; ’52, M.A.; ’56, Ph.D.

Pisner, Barbara — 1985 — Recruitment Coordinator (1988), SARLM, Montana State University ’77, B.S.; ’85, M.S.

Ping, Chion Lu — 1982 — Associate Professor of Agronomy (1989), SALRM, Chung Hua University, Taiwan ’83, B.S.; Washington State University ’72, M.S.; ’76, Ph.D.


Pitney, Randall — 1963 — Rifle Coach (1985), ATHREC, University of Alaska Fairbanks ’72, B.S.

Plumley, F. Gerald — 1988 — Associate Professor of Marine Science (1988), SFS/IMS, Mars Hill College ’73, B.S.; Auburn University ’77, M.S.; University of Georgia ’83, Ph.D.

Pollard, Marvin E. — 1985 — Assistant Professor of Library Science (1985), UAB, University of Wisconsin-Madison ’70, B.A.; Rosemary College ’73, M.A.L.S.

Pomeroy, Douglas — 1990 — Adjunct Assistant Professor of Psychology and Guidance and Counseling (1990), CRA, Pepperdine University ’75, A.A.; Chico State College ’77, B.A.; Humboldt State University ’80, M.A.; Oregon State University ’86, Ph.D.

Possenti, Richard G. — 1966 — Associate Professor of Psychology (1973), CRA, St. Joseph College ’51, B.S.; University of Alabama ’53, M.A.

Powell, Dory — 1965 — Buyer (1988), VCA.

Powell, Therin — 1989 — Housing Officer (1989), KUC/CRA.

Powder, W. Roger — 1971 — Professor of Anthropology (1989) and Department Head (1989), CNS, Idaho State University ’64, B.A.; University of Wisconsin ’68, M.S.; ’73, Ph.D.

Preston, Diane — 1989 — Counselor, Center for Health and Counseling (1989), STUAFF, University of California, Santa Barbara ’70, B.A.; University of Alaska Fairbanks ’89, M.A.
Shields, Gerald F. — 1973 — Professor of Zoology (1985). CNS, IAB, Carroll College '66, B.A.; Central Washington State College '70, M.S.; University of Toronto '74, Ph.D.

Shinkwin, Anne D. — 1971 — Dean, College of Liberal Arts and Professor of Anthropology (1983). CNS, University of Connecticut '60, B.A.; George Washington University '64, M.A.; University of Wisconsin '73, Ph.D.

Shirley, Thomas C. — 1986 — Associate Professor of Fisheries (1982). SFOS/IFCOS, Texas A&M University '69, B.S., B.S.; Louisiana State University '82, Ph.D.

Shuler, Robert J. — 1987 — Associate Professor of Liberal Arts (1987). KUC, CNS. University of Texas '63, B.A.; University of Oregon '71, M.A.

Shuker, Peggy — 1988 — Associate Professor of English (1990). CNS, University of Arizona '79, M.F.A.

Simpson, Glen C. — 1969 — Professor of Art (1969) and Head, Department of Art. CNS, Rochester Institute of Technology '58, B.F.A.; '69, M.F.A.


Sink, Cathy R. — 1980 — Staff Counselor, Center for Health and Counseling, SFU, and Assistant Professor of Psychology (1982). CNS, University of California, Los Angeles '74, B.A.; Fuller Graduate School of Psychology '77, M.A.; Ph.D.Licensed Psychologist '82.


Skelton, Marcelo — 1985 — Instructor, Learning Assistance and Developmental Studies (1986). SFOS, Occidental College '85, B.S.; University of Maryland '84, M.Ed.; New Mexico State University '86, Ed.D.


Smiley, Scott T. — 1989 — Assistant Professor of Biology (1989). IAB, CNS. University of California, Berkeley '79, B.A.; University of Washington, Seattle '84, M.S., '86, Ph.D.

Smith, Bruce L. — 1988 — General Manager, KUAC FM/TV; Assistant Professor of Broadcasting (Head, Department of Journalism and Broadcasting (1986). CNS, University of Minnesota '73, B.A.; Miami University '74, M.A.; Murray State University '79, M.B.A.

Smith, David M. — 1986 — Professor of Education (1986). CNS; Associate Faculty of Anthropology (1979). Nan College '60, B.S.; Hartford Seminary Foundation '65, M.A.; Michigan State University '69, Ph.D.


Smith, Roger W. — 1984 — Professor of Physics (1984). GIC, CNS. University of Exeter '63, B.S., '87, Ph.D.

Smith, Ronald L. — 1968 — Professor of Zoology (1984). CNS, SFOS/IMS; Occidental College '64, B.A.; University of Miami '67, M.S.; '68, Ph.D.

Smith, Thomas D. — 1987 — Acting Assistant Director for Coastal and Marine Operations (1989). SFOS/IMS; U.S. Coast Guard Academy '82, B.S.; American University '71, M.S.

Smith, Thomas E. — 1973 — Affiliate Professor of Mining Geology (1984). CNS, Stanford University '65, M.S.; University of Nevada '71, Ph.D.

Smith, William H. — 1964 — Associate Professor of Library Science (1989). IB, Iowa State College '58, B.S.; Simmons College '60, M.S.

Smoker, William W. — 1978 — Associate Professor of Fisheries (1983). SFOS/IFCOS, Carleton College '67, B.A.; Oregon State University '70, M.S.; '92, Ph.D.


Soos, Frank — 1986 — Assistant Professor of Creative Writing (1986). CNS, Davidson College '72, A.B.; University of Kansas '81, M.F.A.

Sorenson, Fred E. — 1990 — Assistant Professor of Extension, Land Resources, 4-H & Youth (1980). CNS, University of Minnesota '74, B.A.; Moss Landing Marine Laboratories '84, M.S.

Soza, Ramona E. — 1988 — Assistant Professor of Alaska Native Studies and Political Science (1988). CNS, University of Washington '70, B.A.; Washington State University '80, B.S.; University of Washington '86, Ph.D.

Sparr, Lucy — 1987 — Affiliate Professor of Human Services and Counselor (1987). KUC, CRA. Mary Manco College '67, B.A.; University of Utah '71, M.S.W.

Sparrow, Elena B. — 1987 — Affiliate Associate Professor of Soil Microbiology and Soil Scientist with ASDA-ARS (1987). SFOS, University of the Philippines '82, M.S., Cornell University '88, Ph.D.


Spell, B. David — 1978 — Assistant Professor of Electrical Engineering (1980). CNS, University of Washington '74, B.S.E.E., '81, M.S.E.E., Ph.D.

Wadlow, Joan K. — 1991 — Chancellor (1991). University of Nebraska ’53, B.A.; Fletcher School of Law and Diplomacy ’56, M.A.; University of Nebraska ’63, Ph.D.

Walker, Cynthia L. — 1977 — Associate Professor of English (1982). CLA. Denison University ’76, B.A.; Purdue University ’72, M.A.; ’74, Ph.D.

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Wallace, Wesley K. — 1985 — Associate Professor of Geology (1991). CNS. Rice University ’72, B.A.; University of Washington ’76, M.S.; ’81, Ph.D.


Walworth, James — 1989 — Assistant Professor of Soil Fertility (1989). SALRM. University of Wisconsin ’76, B.S.; ’80, M.S.; University of Georgia ’85, Ph.D.


Waters, John M. — 1990 — Assistant Professor of Paraprofessional Counseling (1990). SCCE. St. Francis College ’74, B.S.; University of Minnesota ’78, M.S.W.

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Watts, Keith F. — 1985 — Assistant Professor of Geology (1985). CNS. Utah State University ’78, B.S.; University of California ’85, Ph.D.

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Weilen, Arvid — Assistant Professor of Airframe and Powerplant/Aviation Technology, SCCE. St. Cloud State College ’71, B.S.


Weimer, Daniel R. — 1989 — Research Associate Professor (1989). CLA. University of Michigan ’77, B.S.; ’78, B.S.E.E.; University of Iowa ’83, M.S.; ’84, Ph.D.


Wells, Deborah H. — 1990 — Director (1990). CASE. College of Wooster ’74, B.A.; College of Arts and Sciences at Plattsburgh ’85, M.A.

Wells, W. Tom — 1984 — Associate Professor of Exercise Physiology (1991) and Head, Department of Physical Education (1986). CLA. University of Minnesota ’71, B.S.; Indiana University ’73, M.A.; ’81, Ph.D.


West, C. Eugene — 1977 — Associate Professor of Library Science (1988). LIB. Dickinson State College ’60, B.S.; University of Denver ’70, M.S.; University of Alaska ’78, M.A.

West, Sharon M. — 1973 — Associate Professor of Library Science (1981) and Head, Library Science Department (1991). LIB. University of Southern Colorado ’69, B.S.; University of Denver ’70, M.A.


Wichmann, Henry — 1986 — Professor of Accounting Information Systems (1986). SOM. University of Denver ’62, B.S.; Colorado State College ’64, M.A.; University of Northern Colorado ’72, Ph.D.


Williette, T. Mark — 1986 — Marine Extension Agent, Instructor of Fisheries (1988). MAP. University of Alaska ’83, B.S.; ’93, M.S.

Williams, David — 1979 — Assistant Director (1989). KUC/CRA. University of Wisconsin ’75, B.A.


Williams, Fran — 1989 — Senior Purchasing Agent (1989). VCA.


Wilson, Warrack G. — 1988 — Visiting Associate Professor of Coal Science and Technology (1988). SME. University of Northern Colorado ’85, B.A.; University of Wyoming ’70, Ph.D.

Wilm, Helga — 1968 — Assistant to the Director (1978). GI.


Wilson, L. Stanley — 1980 — Assistant Professor of Education (1980). CRA. University of Saskatchewan ’68, B.A.; University of California ’80, Ph.D.

Wilson, Margaret (Peggy) — 1989 — Visiting Assistant Professor of Guidance and Counseling (1989). CRA. University of Saskatchewan ’85, B.Ed.; University of California. Santa Barbara ’86, M.A.; ’89, Ph.D.


Willte, Milton A. — 1979 — Affiliate Associate Professor of Geology (1984). CNS. University of Pennsylvania ’64, B.S.; Indiana University ’66, M.S.; ’68, Ph.D.

Windschittl, Paul M. — 1987 — Assistant Professor of Animal Science (1987). SALRM. SDSU. University of Wyoming ’71, B.S.; ’73, M.S.; University of Minnesota ’86, Ph.D.

Wintersteen, Theodore — 1978 — Associate Professor of Library Science and Librarian (1978). KUC/CRA. Wesleyan University ’65, B.A.; Emporia State University ’78, M.L.S.

Wood, Margaret K. — 1987 — Director of Bristol Bay Campus (1987). BBC. University of Washington ’59, B.S.; University of Oregon ’58, M.S.; ’77, Ph.D.


Woodward, Kezler — 1982 — Associate Professor of Art (1988). CLA. Davidson College ’73, B.A.; Idaho State University ’77, M.F.A.

Workman, William G. — 1973 — Associate Professor of Economics (1973). SALRM. University of Wyoming ’69, B.S.; Utah State University ’72, M.A.; ’73, Ph.D.


Worley, Joan — 1990 — Assistant Professor of English (1990). CLA. Michigan State University ’72, B.A.; Ohio University ’76, M.A.; ’83, Ph.D.

Wyne, Kathleen M. — 1989 — Visiting Assistant Professor of Fisheries and Marine Extension Agent (1990). SFOS/MP. University of Idaho ’77, B.S.; ’81, M.S.

Yarie, John A. — 1978 — Assistant Professor of Silviculture and Forest Soils (1983). SALRM. Forest Soils Laboratory (1978). West Virginia University ’71, B.S.; University of Maine ’74, M.S.; University of British Columbia ’78, Ph.D.


Zach, Howard L. — 1970 — Associate Professor of Business Administration (1974). SOM. Colorado State University ’64, B.S.; ’66, M.S.

Index

A

- About this Catalog, 1
- Academic Advising, 39
- Academic Bankruptcy for returning students, 13
- Academic Calendars:
  - Branch Campuses, 8-9
  - Fairbanks Campus, inside front cover
- Academic Disqualification, 19
- Academic Honors, 19
- Academic Progress, 19
- Academic Regulations, 19-21
- Academic Standards, 19
- Access to Records, 21
- Accounting, 54
- Courses, 107
- Accounting and Information Systems Courses, 107
- Accreditation, 1
- ACT Testing, 11, 17
- Activity Fee, 30
- Adding Dropping and Withdrawing
  - from Courses, 17
- Admission Processing Fee, 30
- Admissions, 11-14
- Adult Education Services, 40
- Advanced Placement Credit, 15
- Advising Center, 39
- Agricultural and Forestry Experiment Station, 49
- Agriculture and Land Resources Management, School of, 51
- Airframe and Powerplant, 54
- Courses, 108
- Alaska Cooperative Fishery and Wildlife Research Unit, 49
- Alaska Native Language Center, 49
- Alaska Native Languages, 55
- Courses, 109
- Alaska Native Politics
  - Courses, 110
- Alaska Native Studies, 56
- Courses, 110
- Alaska Studies Courses, 111
- Alaska Teacher Placement, 39
- Alternative Ways to Earn Credit, 15
- Alumni Relations, 43
- American Sign Language Courses, 112
- Anthropology, 56
- Courses, 112
- Applied Accounting, 57
- Applied Art Courses, 114
- Applied Mining Technology, 57
- Courses, 110
- Applied Photography Courses, 117
- Applied Physics, 57
- Applied Small Business, 58
- Courses, 114
- Applying for Admission, 11
- Applied Small Business, 57
- Arctic Biology, Institute of, 49
- Arctic Engineering, 58
- Army ROTC Program, 89
- Art, 58
- Courses, 117
- Asian Studies, 59
- ASSET Test, 11, 17
- Associate Degree Admission Requirements, 11
- Degree Requirements, 24
- Associate of Arts, 59
- Associated Students of the University of Alaska Fairbanks, 43
- Athletic Coaching, 60
- Athletics and Recreation, 43
- Atmospheric Sciences, 60
- Courses, 119
- Attendance, 19
- Auditing, 17
- Automotive Courses, 119
- Aviation Technology, 60
- Courses, 119

B

- Baccalaureate Core, 19, 24
- Bachelor's Degrees:
  - Admission Requirements, 11
  - Degree Requirements, 24
- Biochemistry and Molecular Biology, 61
- Biological Sciences Courses, 61
- Biology, 61
- Courses, 121
- Bio-Medical Library, 45
- Board of Regents, Register, 189
- Board Plans, 37
- Bookstore, 40
- Botany, 61
- Branch Campuses, 7
- Bristol Bay Campus, 7
- Broadcasting, 83
- Business Administration, 61
- Courses, 123

C

- Calendars, Academic
  - Branch Campuses, 8
  - Fairbanks Campus, inside front cover
  - Campus Locations Map, 9
  - Campus Resources, 42-45
  - Career and Continuing Education, School of, 51
  - Career Development Center, 39
  - Career Services, 35
  - Center for Cross-Cultural Studies, 49
  - Center for Health and Counseling, 40
  - Certificate Programs:
    - Admission Requirements, 11
    - Degree Requirements, 23
    - Chancellor's List, 49
    - Change of Grade Policy, 19
    - Chemistry, 62
    - Courses, 125
    - Chinese
      - Courses, 126
    - Chukchi Campus, 7
    - Citizens' Law, 63
    - Civil Engineering, 63
    - Courses, 126
    - Class Standing, 19
    - College Board Advanced Placement, 15
    - College Level Examination Program (CLEP), 15
    - College of Liberal Arts, 51
    - College of Natural Sciences, 51
    - College of Rural Alaska, 51
    - College Student Personnel Administration
      - Courses, 127
    - Colleges and Schools, 51-52
    - Community Health Aide/Practitioner, 64
      - Courses, 127
    - Community Psychology, 63
    - Computer Applications, 65
    - Courses, 128
    - Computer Information Systems, 65
    - Computer Science, 66
    - Courses, 129
    - Computing, Academic, 43
    - Conditional and Final Acceptance, 11
    - Contents, 3
    - Continuing Education, 43
    - Core Curriculum, 24
    - Correspondence Study, 16
    - Counseling
      - Courses, 130
    - Counseling, Center for Health and, 40
      - Course Classifications, 19, 105
      - Course Credits, 105
      - Course Descriptions, 105-107
      - Course Numbers, 105
      - Course Placement, 13
      - Credit:
        - Reserving Graduate, 21
        - Transfer, 13
      - Credit-by-Examination, 15
      - Credit for Prior Learning, 16
      - Credit-Non-Credit Option, 17
      - Cross-Cultural Communication, 66
      - Courses, 131
    - Cross-Cultural Studies Development Program, 70
    - Cross-Cultural Studies, Center for, 49
    - Culinary Arts, 66
    - Courses, 131

D

- Dance
  - Courses, 132
- Danish
  - Courses, 132
- DATES-ASSET Tests, 15
- Dean's List, 19
- Dentistry, 67
- Deferred Fees, 29
- Degrees and Programs, 53-104
- Degree, How to Earn a, 22-27
- Developmental English
  - Courses, 132, 143
- Developmental Mathematics
  - Courses, 132, 162
- Developmental Studies, 39
- Courses, 132
- Diesel/Heavy Equipment Mechanics, 67
- Courses, 133
- Diplomas, 23
- Directory, 2
- Disabled Student Services, 40
- Downtown Center, 7
- Drafting Technology, 67
- Courses, 141
- Drop/Add, 17

E

- Early Childhood Development, 66
  - Courses, 133
- Early Childhood Education, 68
  - Courses, 134
- Early Orientation for New Students (EONS), 41
- Earth Science, 60
- Economics, 69
- Courses, 135
- Education, 69
- Courses, 137
- Electrical Engineering, 74
  - Courses, 144
- Electronics Technology Courses, 141
- Elementary Education, 70
- Emergency Medical Technology Courses, 142
- Emeriti Register, 169
- Engineering and Science Management Courses, 142
- Engineering Management, 75
- Engineering, School of, 31
- Engineering Science Courses, 142
- English, 73
- Courses, 143
- English as a Second Language Courses, 145
- Enroll, How to, 11-16
- Entrance Requirements, 12
- Environmental Quality Engineering
  - and Science, 76
  - Courses, 146
- Eskimo, 76
- Courses, 146
- Exchange Programs, 43
- Executive Council Register, 190

F

- Faculty, 6
- Faculty and Staff Register, 191
- Fairbanks Area, 59
- Fairbanks Campus Map, inside back cover
- Fees and Financial Aid, 29-35
- Financial Aid, 32-35
- Financial Institutions Management, 76
- Fire Science, 77
- Courses, 148
- Fisheries, 78
- Courses, 148
- Fisheries and Ocean Sciences, School of, 52
- Fishery Industrial Technology, Center, 49
- Food Science and Technology, 79
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Library Science</td>
</tr>
<tr>
<td>103</td>
<td>Loans</td>
</tr>
<tr>
<td>103, 13</td>
<td>Road Advanced Placement Credit</td>
</tr>
<tr>
<td>15</td>
<td>Main Campus in Fairbanks, 6</td>
</tr>
<tr>
<td>20</td>
<td>Full-Time, Part-Time Status</td>
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**G**

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<td>General University Requirements</td>
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Credits

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Engineering student Beth Jenkins proudly stands before the "Hypheralic Paraboloid" built by her engineering students.

"The Paraboloid is a unique structure we designed for this project. It's a hyperbolic paraboloid, which means it has a saddle shape, much like a hypar, but with a parabolic curve along each axis.

We used lightweight materials to ensure it's strong yet lightweight. The design allowed us to incorporate elements of both art and engineering, making it a real achievement. I'm proud of what we've accomplished together."

Beth Jenkins, Engineering Student.
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Parking on campus roads and streets is prohibited unless otherwise posted.
A shuttle bus connecting the Lower Campus with West Ridge leaves Wood Center at regular intervals. The center is one of several stops. Schedules can be obtained at Wood Center.